

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 August 2001 (09.08.2001)

PCT

(10) International Publication Number
WO 01/57780 A2

(51) International Patent Classification⁷: **G06K 7/00**

(21) International Application Number: **PCT/US01/02762**

(22) International Filing Date: 26 January 2001 (26.01.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/496,208 2 February 2000 (02.02.2000) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

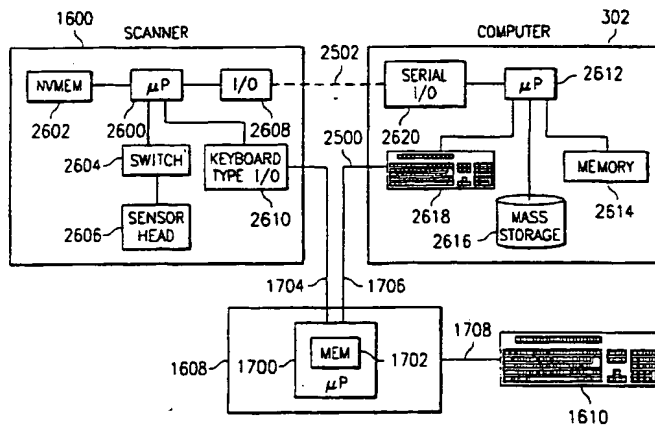
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **BAR CODE SCANNER AND SOFTWARE INTERFACE INTERLOCK**



(57) Abstract: An interlocking architecture for a software interface and a bar code scanner. Upon power-up, a handshaking operation is performed between a scanner (1600) having a scanner processor (2600) and a computer processor (2612) of a computer (302) based upon the code stored in the NV memory (2602) of the scanner (1600) and a unique code associated with the software interface running on the computer (302). A wedge (1608) is provided as an interface mechanism for the scanner (1600) and a keyboard (1610) to a keyboard port (2500) of the computer (302). The handshaking occurs through the wedge (1608) via a keyboard interface (2610) to the processor (2600) such that a successful handshake directs the processor (2600) to engage a switch (2604) which enables power to a sensing head (2606) for read optically encoded information. The software interface operates from a computer memory (2614) associated with the processor (2612) whereby an unsuccessful handshake using unique number of the software interface by the processor (2612) sends a disabling signal through the keyboard circuit (2618) through the wedge (1608) to the scanner processor (2600) to disengage the switch (2604) to drop power to the sensor head (2606). The handshaking operation is performed on a regular basis during system power-up to ensure that the original software interface and scanner (1600) are still in use.

WO 01/57780 A2

BAR CODE SCANNER AND SOFTWARE INTERFACE INTERLOCK

TECHNICAL FIELD OF THE INVENTION

This invention is related to interlocking mechanisms between software and hardware, and more particularly, to interlocking use of a bar code scanner with a software interface.

CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application is a Continuation-in-Part of pending U.S. Patent Application Serial No. 09/378,221 (Atty Dkt. No. PHLY-24,669) entitled "METHOD AND APPARATUS FOR ACCESSING A REMOTE LOCATION BY SCANNING AN OPTICAL CODE."

BACKGROUND OF THE INVENTION

The technological advances in the fabrication of smaller integrated circuits have resulted in controllers and microprocessors being implemented in a wide variety of applications, where in the past such implementations have been considered impossible or very expensive. The introduction of these "smart" or "intelligent" embodiments have a significant impact on commercial ventures producing such products. Therefore, it becomes important to the manufacturer of the product to exercise control over the nature, origin and/or quality of software with which will be used. This protects the use of such products from competitive intrusion, by ensuring that such products can only be used under certain circumstances.

A prime example of this philosophy being put into action is evident in the home video game industry. Nintendo Co., Ltd., a prominent vendor of such systems protects its place in this very competitive area of the market by ensuring that only its game modules will work with its gaming consoles. Unauthorized third-party vendors are prevented from freely producing modules that work with Nintendo's gaming consoles, not only legally by contracts and licensing agreements, but also technically by secure handshaking protocols imposed between the modules and the console. This way, Nintendo protects its long-term viability and survival in the gaming market. Such a protection mechanism also reduces the number of consumer complaints presented to a manufacturer making such products. Those products which have been tested for compatibility are guaranteed to work, and those products which have not, are likely to cause consumer discontent due to operational failures and the like.

A device becoming more prominent in the marketplace is the bar code scanner. Scanners come in a variety of configurations from standalone pens to input devices which connect to computer ports through an interface device called a "wedge," and in some implementations, hand-held telecommunication devices. Advances in bar code technology are expanding the amount of information which can be encoded in the bar code, making the scanner an even more important for facilitating many different types of operations. Therefore, it is desirable to provide a scanner which is interlocked with a particular piece of software to ensure that misuse is prevented, and that third-party vendors cannot illegally reproduce the system causing the owner of such a system lost revenue.

SUMMARY OF THE INVENTION

5 The present invention disclosed and claimed herein, in one aspect thereof, comprises a method for controlling a scanner with a software interface. A scanner is provided which is operable to read scannable information. The scanner is connected to a computer which operates the software interface for processing the scannable information. An encrypted handshaking operation is performed between the software interface and the scanner prior to allowing the scanner to become operable to read the scannable information.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention and the advantages thereof, reference is now made to the following description taken in conjunction with the accompanying Drawings in which:

5 FIGURE 1 illustrates a block diagram of the preferred embodiment;

FIGURE 2 illustrates the computer components employed in this embodiment;

FIGURE 3 illustrates system interactions over a global network;

FIGURES 4a-4e illustrate the various message packets transmitted between the source PC and network servers used in the preferred embodiment; and

10 FIGURE 5 is a flowchart depicting operation of the system according to the preferred embodiment.

FIGURE 6 illustrates a flowchart of actions taken by the Advertiser Reference Server ("ARS") server;

15 FIGURE 7 illustrates a flowchart of the interactive process between the source computer and ARS;

FIGURE 8 illustrates a web browser page receiving the modified URL/advertiser product data according to the preferred embodiment;

FIGURE 9 illustrates a simplified block diagram of the disclosed embodiment;

20 FIGURE 10 illustrates a more detailed, simplified block diagram of the embodiment of FIGURE 9;

FIGURE 11 illustrates a diagrammatic view of a method for performing the routing operation;

FIGURE 12 illustrates a block diagram of an alternate embodiment utilizing an optical region in the video image for generating the routing information;

25 FIGURE 13 illustrates a block diagram illustrating the generation of a profile with the disclosed embodiment;

FIGURE 14 illustrates a flowchart for generating the profile and storing at the ARS;

FIGURE 15 illustrates a flowchart for processing the profile information when information is routed to a user;

30 FIGURE 16 illustrates a general block diagram of a disclosed embodiment;

FIGURE 17 illustrates the conversion circuit of the wedge interface;

FIGURE 18 illustrates a sample message packet transmitted from the user PC to the ARS;

FIGURE 19 illustrates a more detailed block diagram of the routing of the message packets between the various nodes;

5 FIGURE 20 illustrates a block diagram of a browser window, according to a disclosed embodiment;

FIGURE 21 illustrates a diagrammatic view of information contained in the ARS database;

10 FIGURE 22 illustrates a flowchart of the process of receiving information for the user's perspective;

FIGURE 23 illustrates a flowchart according to the ARS;

FIGURE 24 illustrates a flowchart of the process performed at the E-commerce node;

FIGURE 25 illustrates a general diagram in context of a disclosed embodiment;

FIGURE 26 illustrates a more detailed block diagram of a disclosed embodiment;

15 FIGURE 27 illustrates an alternative embodiment incorporating a network;

FIGURE 28 illustrates a flowchart of the operation of the scanner and software interface used in a local mode; and

FIGURE 29 illustrates a flowchart of operation in a remote mode.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIGURE 1, there is illustrated a block diagram of a system for controlling a personal computer ("PC") 112 via an audio tone transmitted over a wireless system utilizing a TV. In the embodiment illustrated in FIGURE 1, there is provided a transmission station 101 and a receive station 117 that are connected via a communication link 108. The transmission station 101 is comprised of a television program source 104, which is operable to generate a program in the form of a broadcast signal comprised of video and audio. This is transmitted via conventional techniques along channels in the appropriate frequencies. The program source is input to a mixing device 106, which mixing device is operable to mix in an audio signal. This audio signal is derived from an audio source 100 which comprises a coded audio signal which is then modulated onto a carrier which is combined with the television program source 104. This signal combining can be done at the audio level, or it can even be done at the RF level in the form of a different carrier. However, the preferred method is to merely sum the audio signal from the modulator 102 into the audio channel of the program that is generated by the television program source 104. The output thereof is provided from the mixing device 106 in the form of broadcast signal to an antenna 107, which transmits the information over the communication link 108 to an antenna 109 on the receive side.

On the receive side of the system, a conventional receiver 110, such as a television is provided. This television provides a speaker output which provides the user with an audible signal. This is typically associated with the program. However, the receiver 110 in the disclosed embodiment, also provides an audio output jack, this being the type RCA jack. This jack is utilized to provide an audio output signal on a line 113 which is represented by an audio signal 111. This line 113 provides all of the audio that is received over the communication link 108 to the PC 112 in the audio input port on the PC 112. However, it should be understood that, although a direct connection is illustrated from the receiver 110 to the PC 112, there actually could be a microphone pickup at the PC 112 which could pick the audio signal up. In the disclosed embodiment the audio signal generated by the advertiser data input device 100 is audible to the human ear and, therefore, can be heard by the user. Therefore, no special filters are needed to provide this audio to the PC 112. The PC 112 is operable to run programs thereon which typically are stored in a program file area 116. These programs can

be any type of programs such as word processing programs, application programs, etc. In the disclosed embodiment, the program that is utilized in the system is what is referred to as a "browser." The PC 112 runs a browser program to facilitate the access of information on the network, for example, a global communication network known as the "Internet" or the World-Wide-Web ("Web"). The browser is a hypertext-linked application used for accessing information. Hypertext is a term used to describe a particular organization of information within a data processing system, and its presentation to a user. It exploits the computer's ability to link together information from a wide variety of sources to provide the user with the ability to explore a particular topic. The traditional style of presentation used in books employs an organization of the information which is imposed upon it by limitations of the medium, namely fixed sized, sequential paper pages. Hypertext systems, however, use a large number of units of text or other types of data such as image information, graphical information, video information, or sound information, which can vary in size. A collection of such units of information is termed a hypertext document, or where the hypertext documents employ information other than text, hypermedia documents. Multimedia communications may use the Hypertext Transfer Protocol ("HTTP"), and files or formatted data may use the Hypertext Markup Language ("HTML"). This formatting language provides for a mingling of text, graphics, sound, video, and hypertext links by "tagging" a text document using HTML. Data encoded using HTML is often referred to as an "HTML document," an "HTML page," or a "home page." These documents and other Internet resources may be accessed across the network by means of a network addressing scheme which uses a locator referred to as a Uniform Resource Locator ("URL"), for example, "http://www.digital.com."

The Internet is one of the most utilized networks for interconnecting distributed computer systems and allows users of these computer systems to exchange data all over the world. Connected to the Internet are many private networks, for example, corporate or commercial networks. Standard protocols, such as the Transport Control Protocol ("TCP") and the Internet Protocol ("IP") provide a convenient method for communicating across these diverse networks. These protocols dictate how data are formatted and communicated. As a characteristic of the Internet, the protocols are layered in an IP stack. At higher levels of the IP stack, such as the application layer (where HTTP is employed), the user information is more readily visible, while at lower levels, such as the network level (where TCP/IP are used), the

data can merely be observed as packets or a stream of rapidly moving digital signals. Superimposed on the Internet is a standard protocol interface for accessing Web resources, such servers, files, Web pages, mail messages, and the like. One way that Web resources can be accessed is by browsers made by *Netscape®* and *Microsoft Internet Explorer®*.

5 Referring again now to FIGURE 1, the user can load this program with the appropriate keystrokes such that a browser window will be displayed on a display 118. In one embodiment, the user can run the browser program on the PC 112 such that the browser window is displayed on the display 118. While watching a preferred program, the user can also view display 118. When an audio signal is received by the receiver 110 and the encoded information is contained
10 therein that was input thereto by the advertiser, the PC 112 will then perform a number of operations. The first operation, according to the disclosed embodiment, is to extract the audio information within the received audio signal in the form of digital data, and then transmit this digital data to a defined location on the global communication network via a modem connection 114. This connection will be described hereinbelow. This information will be relayed to a
15 proprietary location and the instructions sent back to the PC 112 as to the location of the advertiser associated with the code, and the PC 112 will then effect a communication link to that location such that the user can view on the display 118 information that the advertiser, by the fact of putting the tone onto the broadcast channel, desires the viewer to view. This information can be in the form of interactive programs, data files, etc. In one example, when
20 an advertisement appears on the television, the tone can be generated and then additional data displayed on the display 118. Additionally, a streaming video program could be played on the PC received over the network, which streaming video program is actually longer than the advertising segment on the broadcast. Another example would be a sports game that would broadcast the tone in order to allow a user access to information that is not available over the
25 broadcast network, such as additional statistics associated with the sports program, etc.

By utilizing the system described herein with respect to the disclosed embodiment of FIGURE 1, an advertiser is allowed the ability to control a user's PC 112 through the use of tones embedded within a program audio signal. As will be described hereinbelow, the disclosed embodiment utilizes particular routing information stored in the PC 112 which allows the
30 encoded information in the received audio signal to route this information to a desired location

on the network and then allow other routing information to be returned to the PC 112 for control thereof to route the PC 112 to the appropriate location associated with that code.

Referring now to FIGURE 2, there is illustrated a computer 204, similar to computer 112, connected to display information on display 118. The computer 204 comprises an internal audio or "sound" card 206 for receiving the transmitted audio signal through receive antenna 109 and receiver 110. The sound card 206 typically contains analog-to-digital circuitry for converting the analog audio signal into a digital signal. The digital signal may then be more easily manipulated by software programs. The receiver 110 separates the audio signal from the video signal. A special trigger signal located within the transmitted advertiser audio signal triggers proprietary software running on the computer 204 which launches a communication application. in this particular embodiment, the web browser application located on the PC 204. Coded advertiser information contained within the audio signal is then extracted and appended with the address of a proprietary server located on the communication network. The remote server address is in the form of a URL. This appended data, in addition to other control codes, is inserted directly into the web browser application for automatic routing to the communication network. The web browser running on PC 204, and communicating to the network with a through an internal modem 208, in this embodiment, transmits the advertiser information to the remote server.

The remote server cross-references the advertiser product information to the address of the advertiser server located on the network. The address of the advertiser server is routed back through the PC 204 web browser to the advertiser server. The advertiser product information is returned to PC 204 to be presented to the viewer on display 118. In this particular embodiment, the particular advertiser product information displayed is contained within the advertiser's web page 212. As mentioned above, the audio signal is audible to the human ear. Therefore the audio signal, as emitted from the TV speakers, may be input to the sound card 206 via a microphone. Furthermore, the audio signal need not be a real-time broadcast, but may be on video tapes, CDs, DVD, or other media which may be displayed at a later date. With the imminent implementation of high definition digital television, the audio signal output from the TV may also be digital. Therefore, direct input into a sound card for A/D purposes may not be necessary, but alternative interfacing techniques to accommodate digital-to-digital signal

formats would apply.

Referring now to FIGURE 3, there is illustrated a source PC 302, similar to PCs 204 and 112, connected to a global communication network 306 through an interface 304. In this embodiment, the audio signal 111 is received by PC 302 through its sound card 206. The audio
5 signal 111 comprises a trigger signal which triggers proprietary software into launching a web browser application residing on the PC 302. The audio signal 111 also comprises advertiser product information which is extracted and appended with URL information of an Advertiser Reference Server ("ARS") 308. The ARS 308 is a system disposed on the network that is defined as the location to which data in the audio signal 111 is to be routed. As such, data in
10 the audio signal 111 will always be routed to the ARS 308, since a URL is unique on the network system.

Connected to the ARS 308 is a database 310 of product codes and associated manufacturer URLs. The database 310 undergoes a continual update process which is transparent to the user. As companies sign-on, e.g., subscribe, to this technology, manufacturer
15 and product information is added to the database 310 without interrupting operation of the source PC 302 with frequent updates. When the advertiser server address URL is obtained from the ARS database 310, it and the request for the particular advertiser product information is automatically routed back through the web browser on PC 302, over to the respective advertiser server for retrieval of the advertiser product information to the PC 302. It should be
20 noted that although the disclosed invention discusses a global communication network, the system is also applicable to LANs, WANs, and peer-to-peer network configurations. It should be noted that the disclosed architecture is not limited to a single source PC 302, but may comprise a plurality of source PCs, e.g., PC 300 and PC 303. Moreover, a plurality of ARS 308 systems and advertiser servers 312 may be implemented, e.g., ARS 314, and advertiser server
25 A 316, respectively.

The information transactions, in general, which occur between the networked systems of this embodiment, over the communication network, are the following. The web browser running on source PC 302 transmits a message packet to the ARS 308 over Path "A." The ARS 308 decodes the message packet and performs a cross-reference function with product

information extracted from the received message packet to obtain the address of an advertiser server 312. A new message packet is assembled comprising the advertiser server 312 address, and sent back to the source PC 302 over Path "B." A "handoff" operation is performed whereby the source PC 302 browser simply reroutes the information on to the advertiser server 312 over Path "C," with the appropriate source and destination address appended. The advertiser server 312 receives and decodes the message packet. The request-for-advertiser-product-information is extracted and the advertiser 312 retrieves the requested information from its database for transmission back to the source PC 302 over Path "D." The source PC 302 then processes the information, i.e., for display to the viewer. The optional Path "E" is discussed hereinbelow. It should be noted that the disclosed methods are not limited to only browser communication applications, but may accommodate, with sufficient modifications by one skilled in the art, other communication applications used to transmit information over the Internet or communication network.

Referring now to FIGURE 4a, the message packet 400 sent from the source PC 302 to ARS 308 via Path "A" comprises several fields. One field comprises the URL of the ARS 308 which indicates where the message packet is to be sent. Another field comprises the advertiser product code or other information derived from the audio signal 111, and any additional overhead information required for a given transaction. The product code provides a link to the address of the advertiser server 312, located in the database 310. Yet another field comprises the network address of the source PC 302. In general, network transmissions are effected in packets of information, each packet providing a destination address, a source address, and data. These packets vary depending upon the network transmission protocol utilized for communication. Although the protocols utilized in the disclosed embodiment are of a conventional protocol suite commonly known as TCP/IP, it should be understood that any protocols providing the similar basic functions can be used, with the primary requirement that a browser can forward the routing information to the desired URL in response to keystrokes being input to a PC. However, it should be understood that any protocol can be used, with the primary requirement that a browser can forward the product information to the desired URL in response to keystrokes being input to a PC. Within the context of this disclosure, "message packet" shall refer to and comprise the destination URL, product information, and source address, even though more than a single packet must be transmitted to effect such a

transmission.

Upon receipt of the message packet 400 from source PC 302, ARS 308 processes the information in accordance with instructions embedded in the overhead information. The ARS 308 specifically will extract the product code information from the received packet 400 and, once extracted, will then decode this product code information. Once decoded, this information is then compared with data contained within the ARS advertiser database 310 to determine if there is a "hit." If there is no "hit" indicating a match, then information is returned to the browser indicating such. If there is a "hit," a packet 402 is assembled which comprises the address of the source PC 302, and information instructing the source PC 302 as to how to access, directly in a "handoff" operation, another location on the network, that of an advertiser server 312. This type of construction is relatively conventional with browsers such as *Netscape®* and *Microsoft Internet Explorer®* and, rather than displaying information from the ARS 308, the source PC 302 can then access the advertiser server 312. The ARS 308 transmits the packet 402 back to source PC 302 over Path "B." Referring now to FIGURE 4b, the message packet 402 comprises the address of the source PC 302, the URL of the advertiser server 312 embedded within instructional code, and the URL of the ARS 308.

Upon receipt of the message packet 402 by the source PC 302, the message packet 402 is disassembled to obtain pertinent routing information for assembly of a new message packet 404. The web browser running on source PC 302 is now directed to obtain, over Path "C," the product information relevant to the particular advertiser server 312 location information embedded in message packet 404. Referring now to FIGURE 4c, the message packet 404 for this transaction comprises the URL of the advertiser server 312, the request-for-product-information data, and the address of the source PC 302.

Upon receipt of the message packet 404 from source PC 302, advertiser server 312 disassembles the message packet 404 to obtain the request-for-product-information data. The advertiser server 312 then retrieves the particular product information from its database, and transmits it over Path "D" back to the source PC 302. Referring now to FIGURE 4d, the message packet 406 for this particular transaction comprises the address of the source PC 302, the requested information, and the URL of the advertiser server 312.

Optionally, the ARS 308 may make a direct request for product information over Path "E" to advertiser server 312. In this mode, the ARS 308 sends information to the advertiser server 312 instructing it to contact the source PC 302. This, however, is unconventional and requires more complex software control. The message packet 408 for this transaction is illustrated in FIGURE 4e, which comprises the URL of the advertiser server 312, the request-for-product-information data, and the address of the source PC 302. Since product information is not being returned to the ARS 308, but directly to the source PC 302, the message packet 408 requires the return address to be that of the source PC 302. The product information is then passed directly to PC 302 over Path "D."

Referring now to FIGURE 5, the method for detecting and obtaining product information is as follows. In decision block 500, a proprietary application running resident on a source computer PC 302 (similar to PC 204) monitors the audio input for a special trigger signal. Upon detection of the trigger signal, data following the trigger signal is decoded for further processing, in function block 502. In function block 504, the data is buffered for further manipulation. In decision block 506, a determination is made as to whether the data can be properly authenticated. If not, program flow continues through the "N" signal to function block 520 where the data is discarded. In function block 522, the program then signals for a retransmission of the data. The system then waits for the next trigger signal, in decision block 500. If properly authenticated in decision block 506, program flow continues through the "Y" signal path where the data is then used to launch the web browser application, as indicated in function block 508. In function block 510, the web browser receives the URL data, which is then automatically routed through the computer modem 208 to the network interface 304 and ultimately to the network 306. In function block 514, the ARS 308 responds by returning the URL of advertiser server 312 to the PC 302. In function block 516, the web browser running on the source PC 302, receives the advertiser URL information from the ARS 308, and transmits the URL for the product file to the advertiser server 312. In block 518, the advertiser server 312 responds by sending the product information to the source PC 302 for processing.

The user may obtain the benefits of this architecture by simply downloading the proprietary software over the network. Other methods for obtaining the software are well-known; for example, by CD, diskette, or pre-loaded hard drives.

Referring now to FIGURE 6, there is illustrated a flowchart of the process the ARS 308 may undergo when receiving the message packet 400 from the source PC 302. In decision block 600, the ARS 308 checks for the receipt of the message packet 400. If a message packet 400 is not received, program flow moves along the "N" path to continue waiting for the message. If the message packet 400 is received, program flow continues along path "Y" for message processing. Upon receipt of the message packet 400, in function block 602, the ARS 308 decodes the message packet 400. The product code is then extracted independently in function block 604 in preparation for matching the product code with the appropriate advertiser server address located in the database 310. In function block 606, the product code is then used with a lookup table to retrieve the advertiser server 312 URL of the respective product information contained in the audio signal data. In function block 608, the ARS 308 then assembles message packet 402 for transmission back to the source PC 302. Function block 610 indicates the process of sending the message packet 402 back to the source PC 302 over Path "B."

Referring now to FIGURE 7, there is illustrated a flowchart of the interactive processes between the source PC 302 and the advertiser server 312. In function block 700, the source PC 302 receives the message packet 402 back from the ARS 308 and begins to decode the packet 402. In function block 702, the URL of the advertiser product information is extracted from the message packet 402 and saved for insertion into the message packet 404 to the advertiser server 312. The message packet 404 is then assembled and sent by the source PC 302 over Path "C" to the advertiser server 312, in function block 704. While the source PC 302 waits, in function block 706, the advertiser server 312 receives the message packet 404 from the source PC 302, in function block 708, and disassembles it. The product information location is then extracted from the message packet 404 in function block 710. The particular product information is retrieved from the advertiser server 312 database for transmission back to the source PC 302. In function block 712, the product information is assembled into message packet 406 and then transmitted back to the source PC 302 over Path "D." Returning to the source PC 302 in function block 714, the advertiser product information contained in the message packet 406 received from the advertiser server 312, is then extracted and processed in function block 716.

Referring now to FIGURE 8, after receipt of a trigger signal, a web browser application on a source PC 302 is automatically launched and computer display 800 presents a browser page 802. Proprietary software running on the source PC 302 processes the audio signal data after being digitized through the sound card 206. The software appropriately prepares the data for insertion directly into the web browser by extracting the product information code and appending keystroke data to this information. First, a URL page 804 is opened in response to a Ctrl-O command added by the proprietary software as the first character string. Opening URL page 804 automatically positions the cursor in a field 806 where additional keystroke data following the Ctrl-O command will be inserted. After URL page 804 is opened, the hypertext protocol preamble http:// is inserted into the field 806. Next, URL information associated with the location of the ARS 308 is inserted into field 806. Following the ARS 308 URL data are the characters /? to allow entry of variables immediately following the /? characters. In this embodiment, the variable following is the product information code received in the audio signal. The product code information also provides the cross-reference information for obtaining the advertiser URL from the ARS database 310. Next, a carriage return is added to send the URL/product data and close the window 804. After the message packet 400 is transmitted to the ARS 308 from the source PC 302, transactions from the ARS308, to the source PC 302, to the advertiser server 312, and back to the source PC 302, occur quickly and are transparent to the viewer. At this point, the next information the viewer sees is the product information which was received from the advertiser server 312.

Referring now to FIGURE 9, there is illustrated a block diagram of a more simplified embodiment. In this embodiment, a video source 902 is provided which is operable to provide an audio output on an audio cable 901 which provides routing information referred to by reference numeral 904. The routing information 904 is basically information contained within the audio signal. This is an encoded or embedded signal. The important aspect of the routing information 904 is that it is automatically output in realtime as a function of the broadcast of the video program received over the video source 902. Therefore, whenever the program is being broadcast in realtime to the user 908, the routing information 904 will be output whenever the producer of the video desires it to be produced. It should be understood that the box 902 representing the video source could be any type of media that will result in the routing information being output. This could be a cassette player, a DVD player, an audio cassette, a

CD ROM or any such media. It is only important that this is a program that the producer develops which the user 908 watches in a continuous or a streaming manner. Embedded within that program, at a desired point selected by the producer, the routing information 904 is output.

5 The audio information is then routed to a PC 906, which is similar to the PC 112 in FIGURE 1. A user 908 is interfaced with the PC to receive information thereof, the PC 906 having associated therewith a display (not shown). The PC 906 is interfaced with a network 910, similar to the network 306 in FIGURE 3. This network 910 has multiple nodes thereon, one of which is the PC 906, and another of which is represented by a network node 912 which represents remote information. The object of the present embodiment is to access remote
10 information for display to the user 908 by the act of transmitting from the video program in block 902 the routing information 904. This routing information 904 is utilized to allow the PC 906 which has a network "browser" running thereon to "fetch" the remote information at the node 912 over the network 910 for display to the user 908. This routing information 904 is in the form of an embedded code within the audio signal, as was described hereinabove.

15 Referring now to FIGURE 10, there is illustrated a more detailed block diagram of the embodiment of FIGURE 9. In this embodiment, the PC 906 is split up into a couple of nodes, a first PC 1002 and a second PC 1004. The PC 1002 resides at the node associated with the user 908, and the PC 1004 resides at another node. The PC 1004 represents the ARS 308 of FIGURE 3. The PC 1004 has a database 1006 associated therewith, which is basically the
20 advertiser database 310. Therefore, there are three nodes on the network 910 necessary to implement the disclosed embodiment, the PC 1002, the PC 1004 and the remote information node 912. The routing information 904 is utilized by the PC 1002 for routing to the PC 1004 to determine the location of the remote information node 912 on the network 910. This is returned to the PC 1002 and a connection made directly with the remote information node 912 and the information retrieved therefrom to the user 908. The routing information 904 basically
25 constitutes primary routing information.

Referring now to FIGURE 11, there is illustrated a diagrammatic view of how the network packet is formed for sending the primary routing information to the PC 1004. In general, the primary routing information occupies a single field which primary routing

information is then assembled into a data packet with the secondary routing information for transfer to the network 910. This is described hereinabove in detail.

Referring now to FIGURE 12, there is illustrated an alternate embodiment to that of FIGURE 9. In this embodiment, the video source 902 has associated therewith an optical region 1202, which optical region 1202 has disposed therein an embedded video code. This embedded video code could be relatively complex or as simple as a grid of dark and white regions, each region in the grid able to have a dark color for a logic "1" or a white region for a logic "0." This will allow a digital value to be disposed within the optical region 1202. A sensor 1204 can then be provided for sensing this video code. In the example above, this would merely require an array of optical detectors, one for each region in the grid to determine whether this is a logic "1" or a logic "0" state. One of the sensed video is then output to the PC 906 for processing thereof to determine the information contained therein, which information contained therein constitutes the primary routing information 904. Thereafter, it is processed as described hereinabove with reference to FIGURE 9.

Referring now to FIGURE 13, there is illustrated a block diagram for an embodiment wherein a user's profile can be forwarded to the original subscriber or manufacturer. The PC 906 has associated therewith a profile database 1302, which profile database 1302 is operable to store a profile of the user 908. This profile is created when the program, after initial installation, requests profile information to be input in order to activate the program. In addition to the profile, there is also a unique ID that is provided to the user 908 in association with the browser program that runs on the PC 906. This is stored in a storage location represented by a block 1304. This ID 1304 is accessible by a remote location as a "cookie" which is information that is stored in the PC 906 in an accessible location, which accessible location is actually accessible by the remote program running on a remote node.

The ARS 308, which basically constitutes the PC 1004 of FIGURE 10, is operable to have associated therewith a profile database 1308, which profile database 1308 is operable to store profiles for all of the users. The profile database 1308 is a combination of the stored in profile database 1302 for all of the PCs 906 that are attachable to the system. This is to be distinguished from information stored in the database 310, the advertiser's database, which

contains intermediate destination tables. When the routing information in the primary routing information 904 is forwarded to the ARS 308 and extracted from the original data packet, the lookup procedure described hereinabove can then be performed to determine where this information is to be routed. The profile database 1302 is then utilized for each transaction, wherein each transaction in the form of the routing information received from the primary routing information 904 is compared to the destination tables 310 to determine what manufacturer it is associated with. The associated ID 1304 that is transmitted along with the routing information in primary routing information 904 is then compared with the profile database 1308 to determine if a profile-associated therewith is available. This information is stored in a transaction database 1310 such that, at a later time, for each routing code received in the form of the information in primary routing information 904, there will associated therewith the IDs 1304 of each of the PCs 906. The associated profiles in database 1308, which are stored in association with IDs 1304, can then be assembled and transmitted to a subscriber as referenced by a subscriber node 1312 on the network 910. The ARS 308 can do this in two modes, a realtime mode or a non-realtime mode. In a realtime mode, each time a PC 906 accesses the advertiser database 310, that user's profile information is uploaded to the subscriber node 1312. At the same time, billing information is generated for that subscriber 1312 which is stored in a billing database 1316. Therefore, the ARS 308 has the ability to inform the subscriber 1312 of each transaction, bill for those transactions, and also provide to the subscriber 1312 profile information regarding who is accessing the particular product advertisement having associated therewith the routing information field 904 for a particular routing code as described hereinabove. This information, once assembled, can then be transmitted to the subscriber 1312 and also be reflected in billing information and stored in the billing information database 1316.

Referring now to FIGURE 14, there is illustrated a flowchart depicting the operation for storing the profile for the user. The program is initiated in a block 1402 and then proceeds to a function block 1404, wherein the system will prompt for the profile upon initiation of the system. This initiation is a function that is set to activate whenever the user initially loads the software that he or she is provided. The purpose for this is to create, in addition to the setup information, a user profile. Once the user is prompted for this, then the program will flow to a decision block 1406 to determine whether the user provides basic or detailed information.

This is selectable by the user. If selecting basic, the program will flow to a function block 1408 wherein the user will enter basic information such as name and serial number and possibly an address. However, to provide some incentive to the user to enter more information, the original prompt in function block 1404 would have offers for such things as coupons, discounts, etc, if
5 the user will enter additional information. If the user selects this option, the program from the decision block 1406 to a function block 1410. In the function block 1410, the user is prompted to enter specific information such as job, income level, general family history, demographic information and more. There can be any amount of information collected in this particular function block.

10 Once all of the information is collected, in either the basic mode or the more specific mode, the program will then flow to a function block 1412 where this information is stored locally. The program then flows to a decision block 1414 to then go on-line to the host or the ARS 308. In general, the user is prompted to determine whether he or she wants to send this information to the host at the present time or to send it later. If he or she selects the "later"
15 option, the program will flow to a function block 1415 to prompt the user at a later time to send the information. In the disclosed embodiment, the user will not be able to utilize the software until the profile information is sent to the host. Therefore, the user may have to activate this at a later time in order to connect with the host.

If the user has selected the option to upload the profile information to the host, the
20 program will flow to the function block 1416 to initiate the connect process and then to a decision block 1418 to determine if the connection has been made. If not, the program will flow along a "N" path to a time to decision block 1420 which will time to an error block 1422 or back to the input of the connect decision block 1418. The program, once connected, will then flow along a "Y" path from decision block 1418 to a function block 1428 to send the
25 profile information with the ID of the computer or user to the host. The ID is basically, as described hereinabove, a "cookie" in the computer which is accessed by the program when transmitting to the host. The program will then flow to a function block 1430 to activate the program such that it, at later time, can operate without requiring all of the set up information. In general, all of the operation of this flowchart is performed with a "wizard" which steps the
30 user through the setup process. Once complete, the program will flow to a Done block 1432.

Referring now to FIGURE 15, there is illustrated a flowchart depicting the operation of the host when receiving a transaction. The program is initiated at a start block 1502 and then proceeds to decision block 1504, wherein it is determined whether the system has received a routing request, i.e., the routing information 904 in the form of a tone, etc., embedded in the audio signal as described hereinabove with respect to FIGURE 9. The program will loop back around to the input of decision block 1504 until the routing request has been received. At this time, the program will flow along the "Y" path to a function block 1506 to receive the primary routing information and the user ID. Essentially, this primary routing information is extracted from the audio tone, in addition to the user ID. The program then flows to a function block 1508 to look up the manufacturer URL that corresponds to the received primary routing information and then return the necessary command information to the originating PC 108 in order to allow that PC to connect to the destination associated with the primary routing information. Thereafter, the program will flow to a function block 1510 to update the transaction database 1310 for the current transaction. In general, the routing information 904 will be stored as a single field with the associated IDs. The profile database, as described hereinabove, has associated therewith detailed profiles of each user on the system that has activated their software in association with their ID. Since the ID was sent in association with the routing information, what is stored in the transaction database is the routing code, in association with all of the IDs transmitted to the system in association with that particular routing code. Once this transaction database has been updated, as described hereinabove, the transactions can be transferred back to the subscriber at node 312 with the detailed profile information from the profile database 1308.

The profile information can be transmitted back to the subscriber or manufacturer in the node 312 in realtime or non-realtime. A decision block 1512 is provided for this, which determines if the delivery is realtime. If realtime, the program will flow along a "Y" path to a function block 1514 wherein the information will be immediately forwarded to the manufacturer or subscriber. The program will then flow to a function block 1516 wherein the billing for that particular manufacturer or subscriber will be updated in the billing database 1316. The program will then flow into an End block 1518. If it was non-realtime, the program moves along the "N" path to a function block 1520 wherein it is set for a later delivery and it is accrued in the transaction database. In any event, the transaction database will accrue all

information associated with a particular routing code.

With a realtime transaction, it is possible for a manufacturer to place an ad in a magazine or to place a product on a shelf at a particular time. The manufacturer can thereafter monitor the times when either the ads are or the products are purchased. Of course, they must be scanned into a computer which will provide some delay. However, the manufacturer can gain a very current view of how a product is moving. For example, if a cola manufacturer were to provide a promotional advertisement on, for example, television, indicating that a new cola was going to be placed on the shelf and that the first 1000 purchasers, for example, scanning their code into the network would receive some benefit, such as a chance to win a trip to some famous resort in Florida or some other incentive, the manufacturer would have a very good idea as to how well the advertisement was received. Further, the advertiser would know where the receptive markets were. If this advertiser, for example, had placed the television advertisement in ten cities and received overwhelming response from one city, but very poor response from another city, he would then have some inclination to believe that either one poor response city was not a good market or that the advertising medium he had chosen was very poor. Since the advertiser can obtain a relatively instant response and also content with that response as to the demographics of the responder, very important information can be obtained in a relatively short time.

It should be noted that the disclosed embodiment is not limited to a single source PC 302, but may encompass a large number of source computers connected over a global communication network. Additionally, the embodiment is not limited to a single ARS 308 or a single advertiser server 312, but may include a plurality of ARS and advertiser systems, indicated by the addition of ARS 314 and advertiser server A 316, respectively. It should also be noted that this embodiment is not limited only to global communication networks, but also may be used with LAN, WAN, and peer-to-peer configurations.

It should also be noted that the disclosed embodiment is not limited to a personal computer, but is also applicable to, for example, a Network Computer ("NetPC"), a scaled-down version of the PC, or any system which accommodates user interaction and interfaces to information resources.

One typical application of the above noted technique is for providing a triggering event during a program, such as a sport event. In a first example, this may be generated by an advertiser. One could imagine that, due to the cost of advertisements in a high profile sports program, there is a desire to utilize this time widely. If, for example, an advertiser contracted for 15 seconds worth of advertising time, they could insert within their program a tone containing the routing information. This routing information can then be output to the user's PC which will cause the user's PC to, via the network, obtain information from a remote location typically controlled by the advertiser. This could be in the form of an advertisement of a length longer than that contracted for. Further, this could be an interactive type of advertisement. An important aspect to the type of interaction between the actual broadcast program with the embedded routing information and the manufacturer's site is the fact that there is provided in the information as to the user's PC and a profile of the user themselves. Therefore, an advertiser can actually gain realtime information as to the number of individuals that are watching their particular advertisement and also information as to the background of those individuals, profile information, etc. This can be a very valuable asset to an advertiser.

In another example, the producer of the program, whether it be an on-air program, a program embedded in a video tape, CD-ROM, DVD, or a cassette, can allow the user to automatically access additional information that is not displayed on the screen. For example, in a sporting event, various statistics can be provided to the user from a remote location, merely by the viewer watching the program. When these statistics are provided, the advertiser can be provided with profile information and background information regarding the user. This can be important when, for example, the user may record a sports program. If the manufacturer sees that this program routing code is being output from some device at a later time than the actual broadcast itself, this allows the advertisers to actually see that their program is still being used and also what type of individual is using it. Alternatively, the broadcaster could determine the same and actually bill the advertiser an additional sum for a later broadcast. This is all due to the fact that the routing information automatically, through a PC and a network, will provide an indication to the advertiser for other intermediary regarding the time at which the actual information was broadcast.

The different type of medium that can be utilized with the above embodiment are such

things as advertisements, which are discussed hereinabove, contests, games, news programs, education, coupon promotional programs, demonstration media (demos), photographs, all of which can be broadcast on a private site or a public site. This all will provide the ability to allow realtime interface with the network and the remote location for obtaining the routed information and also allow for realtime billing and accounting.

Referring now to FIGURE 16, there is illustrated a general block diagram of a disclosed embodiment. A bar code scanning input device 1600 is provided by a input device distributor to customers and is associated with that distributor via a input device ID stored therein. The input device 1600 is either sold or freely distributed to customers for use with their personal computing systems. Since more and more products are being sold using bar codes, it can be appreciated that a user having the input device 1600 can scan bar codes of a multitude of products in order to obtain more information. Information about these products can be made immediately available to the user from the manufacturer for presentation by the user's computer 302. Beyond simply displaying information about the product in which the user is interested, the input device distributor may include additional advertising information for display to the user such as information about other promotions or products provided or sold by the input device distributor. Similarly, advertisers may provide catalogs of advertisements or information in newspapers or periodicals where the user simply scans the bar code associated with the advertisement using the input device 1600 to obtain further information. There is provided a paper source 1602 having contained thereon an advertisement 1604 and an associated bar code 1606. (Note that the disclosed concept is not limited to scanning of bar codes 1606 from paper sources 1602, but is also operable to scan a bar code 1606 on the product itself. Also, the input device 1600 can be any type of device that will scan any type of image having information encoded therein.)

After obtaining the input device 1600 from the input device distributor, the user connects the input device 1600 to their PC 302. During a scanning operation, input device 1600 reads bar code data 1606 and the input device ID into a "wedge" interface 1608 for conversion into keyboard data, which keyboard data is passed therefrom into the keyboard input port of PC 302. The importance of the input device ID will be discussed in more detail hereinbelow. In general, the input device is a keystroke automator,

The wedge interface 1608 is simply an interface box containing circuitry that accommodates inputs from both the scanning input device 1600 and a computer keyboard 1610. This merely allows the information scanned by the input device 1600 to be input into the PC302. In the disclosed embodiment, the wedge interface 1608 will convert any information.

5 The data output from the input device 1600 is passed into the wedge interface 1608 for conversion into keyboard data which is readily recognizable by the PC 302. Therefore, the input device 1600 is not required to be connected to a separate port on the PC 302. This data is recognized as a sequence of keystrokes. However, the output of the input device 1600 can be input in any manner compatible with the PC 302. When not receiving scanner data, the

10 wedge interface 1608 simply acts as a pass-through device for keyboard data from the keyboard 1610. In any case, the information is ultimately processed by a processor in the PC 302 and can be presented to the user on a display 1612. The wedge interface is operable to provide a decoding function for the bar code and conversion thereof to keystroke input data.

In operation, the product code of a product is provided in the form of a bar code 1606.

15 This bar code 1606 is the "link" to a product. The disclosed embodiment is operable to connect that product information contained in the bar code 1606 with a web page of the manufacturer of that product by utilizing the bar code 1606 as the product "identifier." The program operating on the PC 302 provides routing information to the ARS 308 after launching the browser on the PC 302 and connecting to the ARS 308 over the GCN 306, which ARS 308 then

20 performs the necessary steps to cause the browser to connect to the manufacturer web site, while also providing for an accounting step, as will be described in more detail hereinbelow.

The bar code 1606 by itself is incompatible with any kind of network for the purposes of communication therewith. It is primarily provided for a retail-type setting. Therefore, the information contained in the bar code 1606, by itself, does not allow for anything other than

25 identification of a product, assuming that one has a database 1614 containing information as to a correlation between the product and the bar code 1606.

The wedge interface 1608 is operable to decode the bar code 1606 to extract the encoded information therein, and append to that decoded bar code information relating to an ID for the input device 1600. This information is then forwarded to the ARS by the resident

program in the PC 302. This is facilitated by intermediate routing information stored in the program indicating to which node on the GCN 306 the scanned bar code information is to be sent, i.e., to the ARS 308. It is important to note that the information in the bar code 1606 must be converted from its optical image to numerical values which are then ultimately input to the keyboard input port of PC 302 and converted into data compatible with communication software residing on the PC 302 (in this case, HTML language for insertion into a browser program). When the scanned information is input to the PC 302, the resident program launches the browser program and then assembles a communication packet comprised of the URL of the ARS 308, the input device ID and the user ID. If another type of communications program were utilized, then it would have to be converted into language compatible with that program. Of course, a user could actually key in the information on the bar code 102 and then append the appropriate intermediate routing information thereafter. As will be described hereinbelow, the intermediate routing information appended thereto is the URL of the ARS 308 disposed on the GCN 306.

As part of the configuration for using the input device 1600, the PC 302 hosts input device software which is operable to interpret data transmitted from the input device 1600, and to create a message packet having the scanned product information and input device ID, routing information, and a user ID which identifies the user location of the input device 1600. The input device software loads at boot-up of the PC 302 and runs in the background. In response to receiving a scanned bar code 1606, the wedge interface outputs a keystroke code (e.g., ALT-F10) to bring the input device program into the foreground for interaction by the operating system. The input device program then inserts the necessary information into the browser program. The message packet is then transmitted to interface 304 across the global communication network 306 to the ARS 308. The ARS 308 interrogates the message packet and performs a lookup function using the ARS database 310. If a match is found between particular parameters of the message packet, a return message packet is sent back to the PC 302 for processing.

The input device program running on PC 302 functions to partition the browser window displayed to the user into several individual areas. This is for the purpose of preparing to present to the user selected information in each of the individual areas (also called "framing").

The selected information comprises the product information which the user requested by scanning the bar code 1606 using the input device 1600, information about the input device distributor which establishes the identity of the company associated with that particular input device 1600, and at least one or more other frames which may be advertisements related to other products that the input device distributor sells. Note that the advertisements displayed by the input device distributor may be related to the product of interest or totally unrelated. For example, if a user scans the bar code 1606 of a Company A soda, the input device distributor may generate an advertisement of a new soft drink being marketed by Company A, that it sells. On the other hand, the input device distributor may also structure the display of information to the user such that a user requesting product information of a Product X may get the requested information of Product X along with advertisements for a competing item Product Y. Essentially, the input device distributor is free to generate any advertisement to the user in response to the user requesting product information.

The return message packet transmitted from the ARS 308 to the PC 302 is then transmitted back across the GCN 306 to the advertiser server 312. The advertiser server 312 restructures the message packet and appends the particular product information for transmission back to the PC 302. Upon receiving the particular advertiser information from advertiser server 312, the PC 302 then retransmits a message to the input device distributor site 1616 and E-commerce site 1618 to obtain the information that needs to be framed in the browser window displayed to the user.

Therefore, the input device 1600 is associated with the input device distributor by way of a input device ID such that scanning a product bar code 1606 in order to obtain information about that particular product generates one or more responses from one or more remote sites disposed on the GCN 306. Stored in the input device 1600 is the input device ID which establishes its relationship to the input device distributor. Proprietary input device software running on the PC 302 operates to decode scanned bar code information and the input device ID received from the input device 1600 and wedge interface 1608, and also provides a unique user ID for establishing the location of the user of the input device 1600. The input device software also assembles message packets and works in conjunction with the on-board communication software (e.g., a browser) to automatically route the message packets across the

GCN 306 such that the one or more remote sites disposed on the GCN 306 return information to be framed for presentation to the user.

Referring now to FIGURE 17, there is illustrated a conversion circuit of the wedge interface. A microcontroller 1700 provides conversion of the data from the input device 1600 and controls interfacing of the keyboard 1610 and input device 1600 with the PC 302. The microcontroller 1700 has contained therein a memory 1702 or it can have external memory. There are provided a plurality of input device interfaces 1704 to the input device 1600, a plurality of PC interfaces 1706 to the PC 302, and plurality of keyboard interfaces 1708 to the keyboard 106. In general, the input device interfaces 1704 comprise a serial data line, a ground line, and a power line. Similarly, the keyboard interfaces 1708 comprise a serial data line, a ground line, a clock line, and a power line. The PC 302 provides a clock line, a power line, a serial data, and a ground line for input to the microcontroller 1700. The microcontroller 1700 is operable to receive signals from the keyboard 1610 and transfer the signals to the PC 302 as keyboard signals. Operation with the keyboard 1610 is essentially a "pass-through" procedure. Data output from the keyboard 1610 is already in keyboard format, and therefore requires no conversion by the wedge interface 1608. With respect to the input device 1600, the serial data is not compatible with a keyboard 1610 and, therefore, it must be converted into a keyboard format in order to allow input thereof to the keyboard input of the PC 302.

The microcontroller 1700 performs this function after decoding this bar code information, and conversion of this bar code information into an appropriate stream of data which is comprised of the bar code information and the appended URL. This appended URL will be pre-stored in the memory 1702 and is programmable at the time of manufacture. It is noted that the memory 1702 is illustrated as being contained within the microcontroller 1702 to provide a single chip solution. However, this could be external memory that is accessible by the microcontroller 1702. Therefore, the microcontroller 1700 provides an interface between the input device 1600 and the keyboard 1610 to the PC 302 which allows the input device 1600 to receive coded information and convert it to keyboard strokes or, alternatively, to merely pass-through the keystrokes from the keyboard 1610. Therefore, the user need not install any type of plug-in circuit board into the motherboard of the PC 302 in order to provide an interface to the input device 1600; rather, the user need only utilize the already available keyboard port in

order to input the appropriate data into the system.

In this particular disclosed embodiment, the microcontroller 1700 comprises a PIC16C73 microcontroller by *Microchip Technologies*TM. The PIC16C73 device is a low cost CMOS 8-bit microcontroller with an integrated analog-to-digital converter. The PIC16C73 device, as illustrated in the disclosed embodiment, has 192 bytes of RAM and 4k x 4 of EPROM memory. The microcontroller 1700 can accommodate asynchronous or synchronous inputs from input devices connected to it. In this disclosed embodiment, communication to the keyboard 1610 is synchronous while it is asynchronous when communicating with input device 1600.

It should be noted that, although in this particular embodiment bar code information of the bar code 1606 is input into the keyboard input port of the PC 302, disclosed methods may also be advantageously utilized with high speed port architectures such as Universal Serial Bus ("USB") and IEEE 1394.

Bar codes are structured to be read in either direction. Timing considerations need to be addressed because of the variety of individuals scanning the bar code introduce a wide variety of scan rates. Bar codes use bars of varying widths. The presence of a black bar generates a positive pulse, and the absence of a black bar generates no pulse. Each character of a conventional bar code has associated therewith seven pulses or bars. Depending on the width of the bars, the time between pulses varies. In this disclosed embodiment, the interface circuitry 1608 performs a "running" calculation of the scan time based upon the rising edge of the pulses commencing with the leader or header information. The minimum and maximum scans times are calculated continuously in software with the interface 1608 during the scanning process to ensure a successful scan by the user.

Referring now to FIGURE 18, there is illustrated a sample message packet transmitted from the user's PC 302 to the ARS. The message packet 1800 comprises a number of bits of information including the bar code information 1802 obtained from the user scanning the bar code with the input device 1600; the input device ID 1804 which is embedded in a memory in the input device 1600 and identifies it with a particular input device distributor; and a user ID

1806 which is derived from the software running on the PC 302 and which identifies uniquely with the user location. Note that the message packet includes other necessary information for the proper transmission for point to point.

Referring now to FIGURE 19, there is illustrated a more detailed block diagram of the routing of the message packets in order to present the framed information to the user. As is mentioned hereinabove, when the user scans a bar code 1606 using the input device 1600, an input device program running on the user PC 302 is operable to interpret the information output by the input device 1600 and generate a message packet for transmission over the GCN 306. The input device program assembles the message packet such that it is directed to the ARS 308 disposed on the GCN 306. The message packet contains several pieces of information including the input device ID 1804 which links it to the input device distributor, the user ID 1806 which identifies the particular user using the input device 1600, and bar code information describing a particular product of interest to the user. This message from the PC 302 is transmitted over a path 1900 to the ARS 308 where the ARS database 310 is accessed to cross reference the ID information and bar code information to a particular advertiser and input device distributor. The ARS 308 returns a message packet over a path 1902 to the user PC 302 which contains routing information as to the location of various other sites disposed on the GCN 306, for example, the advertiser server 312 and input device distributor site 1616.

It can be appreciated that other information can also be provided by the ARS 308 which more closely targets the particular user of the input device 1600. For example, if it is known that a particular input device 1600 is sold in a certain geographic area, this information can be useful in targeting the particular user with certain advertising information relevant to that geographic area. In any case, the information returned from the ARS 308 over path 1902 provides enough information for the input device program running on the user PC 302 to identify a number of other sites disposed on the GCN 306. The user PC 302 then processes the return message packet and routes another message packet over a path 1904 to the advertiser server 312. The advertiser server 312 then returns product information of the particular product in which the user was interested back to the user PC 302 over a path 1906. Similarly, the user PC 302 routes information (e.g., the URL of the input device distributor site and the user profile) to the input device distributor site 1616 over a path 1908 in order to obtain information

back over a path 1910 for framing any banners which identify the input device distributor. Additionally, the user PC 302 forwards a message packet to the E-commerce site 1618 over a path 1912 in order to return information regarding any particular advertisements the input device distributor wants to display to the user. The advertisements are returned to the PC 302 over a path 1914.

Referring now to FIGURE 20, there is illustrated a block diagram of a browser window according to the disclosed embodiment. The browser window 2000 is partitioned into a plurality of areas for framing specific information. A bar code area 2002 displays that product information in which the user was interested; a input device specific area 2004 displays information about the input device distributor; and an E-commerce area 2006 displays advertising information that the input device distributor selects for display according to this particular user and input device 1600. As mentioned hereinabove, a program operable to process scanned bar code information with the unique input device 1600 develops the browser window by partitioning it into specific areas for the framing of information. Therefore, information returned from the E-commerce site 1608 is passed through the GCN 306 to the particular E-commerce frame 2006. Similarly, information about the particular product of interest is returned from the advertiser site 312 across the GCN 306 to the particular bar code specific area 2002. Information placed in the input device specific area 2004 is information about the input device distributor which is returned from the input device distributor site 1616 across GCN 306.

Referring now to FIGURE 21, there is illustrated a structure of information contained in the ARS database. The ARS database 310 contains a variety of information required to properly interrogate and assemble packets for obtaining information from the various sites disposed on the GCN 306. The ARS database 310 has a database structure 2100 which contains addresses for the web sites containing the product information requested by the user when scanning the bar code 1606 with the input device 1600. Under a product heading 2102 are listed the particular bar codes and associated routing information for addressing the respective server location. For example, the ARS server 308 may contain any number of advertisers having unique URL addresses associated therewith. Therefore, the bar code 1606 of a particular product is associated with a unique URL address which routes any request for

information of that product to that particular advertiser's site. Also part of the ARS database structure 2000 is a heading of input device under which is the input device ID 1804 and the distributor associated with that input device ID 1804.

5 It can be appreciated that there may be a number of distributors using the disclosed architecture such that each distributor has an ID embedded in the input device which uniquely identifies that input device with the particular distributor. Therefore, the unique input device ID 1804 needs to be listed with the respective distributors of that input device 1600 in order to process the information that needs to be framed and displayed to that particular user. Another heading under the ARS database structure 2100 is a user heading 2106 which contains profile information associated with that particular user ID 1806. As mentioned hereinabove, the user ID 1806 is obtained via the input device software running on the PC 302 and upon installation or subsequent configuration may request that the user input certain profile information which may be used to target that particular user with products and services which identify with that user profile. The ARS database structure 2100 also contains an E-commerce heading 2108 10 which contains information related to the bar code 1606 and an advertisement that may be triggered by the request for that information. For example, any bar code 1606 associated with a paper source 1600 can be associated with the specific information in the ARS database 310. A user wishing to obtain information about a specific soft drink may, in fact, trigger an advertising response of a competitor product. Similarly, the user interested in information about that particular soft drink may also trigger information which is relevant to that particular product or a product which may normally be served in conjunction with that soft drink. Furthermore, if the user profile indicates that this individual has significant interest in finance or insurance, the request for information regarding this particular bar coded product may trigger advertisement from an E-commerce server 1618 related to information about finance and insurance. It should be noted that the information described as contained within the ARS database structure 2100 is not limited to what has been described, but may comprise any number of pieces of information used to present desired information to the computer display of the user. 15 20 25

Referring now to FIGURE 22, there is illustrated a flowchart of the process of receiving information from the user's perspective, and according to the disclosed embodiment. The input 30

device software running on the user's PC 302 runs in the background until activated by output from the input device 1600. Therefore, flow moves to a decision block 2200 where if a scanned input does not occur, flow moves out the "N" path and loops back to the input of decision block 2200. On the other hand, if scanned input information is received, flow moves out the "Y" path to a function block 2202 where the input device software assembles a message packet containing the bar code information, the input device ID 1804 and the ARS 308 URL address. Additionally, the browser is launched in which this information is placed for transmission to the ARS 308. Flow then moves to a function block 2204 where the browser is partitioned into any number of areas in which information is displayed when obtained from the input device distributor site 1616, the E-commerce site 1618, and the advertiser server 312. It should be known that although three frames are shown in the particular window 2000 of this embodiment, the number of frames displayed in the window 2000 is limited only by the available real estate of the window 2000 area itself.

After the input device software partitions the browser window into one or more frames in preparation of receipt of return information, flow moves to a decision block 2206 where the computer waits for information to be returned from the various sites disposed on the GCN 306. If information is not returned, flow moves out the "N" path and simply loops back to the input to continue monitoring for receipt of the information. If information has been received, flow moves out the "Y" path to a function block 2208 where routing information for each frame (or partitioned area of the window 2000) is inserted into one or more packets for transmission to the various sites. The various sites then return the requested information back to the PC 302, as indicated in function block 2210. Flow is then to a function block 2212 where the proprietary software working in conjunction with the hosted browser places the returned information into the respective frames of the window. The user, viewing the display at PC 302, then perceives a variety of information, one of which is the particular product information which he or she requested, in addition to input device distributor information, and possibly other advertisements based upon the user's profile.

Referring now to FIGURE 23, there is illustrated a flowchart of the process according to the ARS. The ARS 308 is operable to decode and process message received from the GCN 306. Therefore, flow is to a decision block 2300 where, if bar code information is not received,

flow is out the "N" path with loop-back to its input. If bar code information has been received, flow is to a function block 2302 where a matching process occurs to link the bar-coded product information to its respective manufacturer. The ARS database 310 also associates the URL address of the manufacturer's server. When a match is found, the ARS 308 begins to assemble a message packet of information for transmission back to the PC 302, as indicated in function block 2304. The message packet contains the product information and the URL address of the manufacturer's website. Flow then moves to a decision block 2306 where the input device ID 1804 is compared with the list of input device IDs issued by the particular input device distributor. If the input device ID 1804 is validated, flow moves out the "Y" path to a function block 2308 where the message packet is appended with the input device ID 1804 and distributor routing address. Flow then moves to a decision block 2310 where the ARS 308 determines if any E-commerce information is to be associated with a particular input device ID 1804. If so, flow is out the "Y" path to a function block 2312 where the message packet is appended with the E-commerce routing string. The E-commerce routing string provides addressing for the E-commerce server 1618. Flow then moves to a function block 2314 where all message packets are returned back to the PC 302 for processing.

Referring back to decision block 2306, if the input device ID 1804 is determined to be invalid, flow moves out the "N" path and jumps forward to the input of decision block 2314, since the lack of a input device ID 1804 interrupts the link to any advertising provided by the E-commerce server 1618. At this point, the only information provided is the link to the adverse server 312 for return of product information. Referring now to decision block 2310, if no E-commerce information is available, flow moves out the "N" path and jumps forward to the input of function block 2314 where the message packet back to the PC 302 contains only the URL of the advertiser server 312, the bar code information, the distributor server 1616 address and input device ID 1804 information.

Referring now to FIGURE 24, there is illustrated a flowchart of the process performed at the E-commerce site. The E-commerce server 1618 receives the message packet from the user PC 302, as indicated in function block 2400, and decodes the packet to perform a match with the bar coded information. Moving on to a decision block 2402, if the match is unsuccessful, flow is out the "N" path to a function block 2404 where the match is rejected.

A message may be returned to indicate that a problem occurred and the user may need to re-scan the product bar code 1606. If a successful match occurs, flow moves out the "Y" path to a function block 2406 where the input device ID 1804 is matched with the bar code product information. The bar coded information may be distributed to customers over a large geographic area. However, the input device 1606 may be coded for certain geographic areas. For example, a input device 1600 having an XXX ID may be restricted for sale in the Southwestern United States while a input device 1600 having a YYY ID may be sold only in the Northeast. In this way, geographic areas may be targeted with advertising more appealing to that particular area. Advertising returned to the user PC 302 may be focused further by obtaining a user profile when the software or input device 1600 are installed. In this way, advertising may be focused based upon the user profile. Therefore, flow moves to a function block 2408 to lookup the E-commerce action based upon the input device ID 1804 and the bar code information. Flow moves to a function block 2410 to assemble all the information into a packet for return to the user PC 302. The product information and/or user profile information may be returned. Flow is then to a function block 2412 where the message packet is transmitted.

Referring now to FIGURE 25, there is illustrated a general diagram in the context of a disclosed embodiment. The scanner 1600 is configured to be operable with a computer 302 having the display 1612 running a software interface compatible with the scanner 1600, and which enables operation of the scanner 1600. The system is operable such that handshaking occurs between the scanner 1600 and the software interface. In one configuration, the scanner 1600, operable to read optically encoded information 1606, interfaces through the wedge 1608 to the keyboard input 2500 of the computer 302. As mentioned hereinabove, the wedge 1608 provides conversion of information to a keyboard-type format, such that hardware interfacing to the wedge 1608 transmits information which is received by the computer 302 into the keyboard input port 2500 as recognizable keyboard-formatted information, i.e., keystrokes. The computer keyboard 1610 passes information through the wedge 1608 into the computer 302 which does not require conversion, since the information is already in the desired keyboard format. It can be appreciated that, optionally, with the more recent advances in serial bus technology, that a scanner 1600 having USB (Universal Serial Bus) compatibility can be connected directly to a USB input port 2502. The software interface then provides the

necessary scanner 1600 information conversion such that the optically encoded information 1606 is properly interpreted. Of course, other serial bus technologies (e.g., IEEE 1394) can also be utilized with the disclosed architecture.

5 The software interface performs the handshaking operation on a regular basis to ensure that incompatible devices capable of performing the same or similar operation can not be substituted after system startup. Similarly, the scanner 1600 contains intelligence operable to ensure that a third-party software interface can not be substituted to operate the scanner 1600. This secure handshaking can be obtained via several scenarios. In the optional context mentioned hereinabove, the scanner 1600 comprises a processor and non-volatile memory
10 which stores encoded information which can only be unlocked and interpreted by the appropriate software interface running and communicating via the USB port 2502 on the computer 302. Upon successful handshaking, the software interface then enables the optical read head of the scanner 1600 such that it can read the optically encoded information 1606.

15 Where the wedge 1608 is used, the same handshaking can be provided via the keyboard port 2500 through the wedge 1608 to the scanner 1600. If, in this embodiment, the scanner comprises the processor and non-volatile memory, the scanner can be made operable under the same circumstances mentioned hereinabove. The software interface performs the necessary handshaking through the keyboard port 2500. In the scenario where the scanner 1600 lacks a processor and non-volatile memory, the scanner 1600 and wedge 1608 can be provided to the
20 user as a set such that the scanner 1600 requires the wedge 1608 for operation. The wedge 1608, having the processor and memory, then performs the handshaking with the software interface in order to enable operation of the optical head for scanning information. This makes it more difficult for those enterprising individuals who attempt to substitute an unauthorized scanner 1600 in place of an approved scanner 1600, and/or unauthorized software for use with
25 the scanner 1600 and wedge 1608. This protective measure ensures that product support can be more effectively provided.

Referring now to FIGURE 26, there is illustrated a more detailed block diagram of a disclosed embodiment. The scanner 1600 is shown having ports capable of accommodating either a serial bus connection for the computer serial connection 2502 to the computer 302, or

a connection to the wedge 1608. Note that these connections are possible using a scanner 1600 manufactured for either a USB port 2502 connection or a wedge 1608 interface connector. The scanner 1600 is illustrated with a processor 2600 having a non-volatile (NV) memory 2602 associated therewith. The NV memory 2602 stores the secure handshaking code required for operation with the software interface running on the computer 302. The processor 2600 controls a switch 2604 which enables or disables a sensor head 2606 which reads the optically encoded information 1606. The processor 2600 communicates with the computer 302 through one or more input/output (I/O) circuits; an I/O interface 2608 for direct connection to the USB port 2502 of the computer 302, and a keyboard interface 2610 for use with the wedge 1608.

The computer 302 comprises standard devices such as a processor 2612 having an associated memory 2614, a mass storage unit 2616, a computer keyboard interface circuit 2618 having the keyboard port 2500, and a serial I/O interface circuit 2620 having the serial I/O port 2502 for serial devices, e.g., USB devices. In operation, the software interface operates from the memory 2614 during execution by the computer processor 2612 to communicate with the scanner processor 2600 to perform the secure handshaking operation in order to enable the operation of the scanner 1600. The operation can be configured to perform the enabling operation only once during power-up of the scanner 1600, wedge 1608, and computer 302 systems, or the configuration can be such that a reenabling command can be sent to the scanner 1600 on a regular basis after power-up of the system, e.g., every 2 seconds. The enabling command is transmitted to the scanner processor 2600 in response to a successful code-matching process between the scanner processor 2600 and the computer processor 2612.

In a configuration where the scanner 1600 lacks a processor 2600, but contains the NV memory 2602 having a code, the computer 320 or the wedge 1608 may access the NV memory 2602, after power-up, and perform the code-matching operation for ultimate enablement of scanner 1600 operation. Using this method, the computer processor 2612, or the wedge processor 1700 operates the scanner switch 2604 to turn on the sensor head 2606. This method may introduce more wires into the cable connection 1704, but reduces the cost of parts for the scanner 1600 by eliminating the scanner processor 2600.

When the configuration requires use of the wedge 1608, the wedge processor 1700

having associated memory 1702 acts as a slave device to the computer processor 2612 and can either perform the handshaking operation directly with the scanner 1600, reporting the results back to the computer processor 2612, or merely pass-through the handshaking exchange occurring between the computer processor 2612 and the scanner NV memory 2602. This exchange occurs through the keyboard port 2500 across connection 1706 to the wedge processor 1700, and then on to the scanner NV memory 2602. Normal operation of the keyboard 1610 occurs across the keyboard connection 1708 through the wedge processor 1700 into the computer 302 without any conversion, since its signals are already in the format required by the computer keyboard interface circuit 2618.

Referring now to FIGURE 27, there is illustrated an alternative embodiment incorporating a network. The global communication network 306 is provided as a mechanism across which scanner 1600 operation is enabled. The user obtains the scanner and software interface, and upon installation, registers the software and scanner by submitting unique numbers associated with each of the scanner 1600 and the software interface to a central registration server (CRS) 2700 having an associated CRS database storage unit 2702. The registration process is required for operation of the scanner 1600.

In one facet of this alternative embodiment, the operation of the scanner 1600 is dependent upon the software interface maintaining communication with the CRS 2700 such that a reenabling "seed" is transmitted from the CRS 2700 back to the user computer 302 to maintain operation of the scanner 1600. The seed can be transmitted regularly, for example, every 50-100 milliseconds such that the scanner 1600 remains enabled for operation by the user. An advantage to this method of operation is that the vendor knows precisely when the user is on-line. With this information, the vendor can then send advertising back to the user during this on-line time. In conjunction with the registration process, a user profile can also be obtained from the user of the scanner 1600. The user profile can be used in a number of ways by the vendor of the scanner, such as targeting the particular user with advertising during use of the scanner 1600. Knowing the user profile information, the advertising can be more focused to the particular user offering a greater opportunity to make a sale of the advertised product. Additionally, the vendor can develop or update the user profile provided during initial registration by tracking the user's activities during their on-line time.

In another facet of this alternative embodiment, the enabling handshaking continues locally between the software interface and the scanner 1600, as described hereinabove, but the software interface also provides an in-use flag to the registration server such that, again, the vendor knows precisely when the user is on-line using the scanner to obtain product information. The vendor can then transmit advertising to the user during the on-line time period.

As mentioned hereinabove, the scanner 1600 is used to scan optically encoded information 1606 which is provided on a variety of publications 1602 or products in conjunction with an advertisement 1604. When scanned, the product information 1606 has appended thereto routing information which routes the product information to the ARS 308. A matching operation is performed with the ARS database 310 whereby a vendor web site address is obtained. The user computer 302 is then routed to the web site address (advertiser server 312) on the network 306 for presentation to the user of product information related to the scanned information 1606 and the advertisement 1604. It can be appreciated that the function of the CRS 2700 and associated database storage unit 2702 can be consolidated into the ARS 308 and ARS database 310, respectively.

Referring now to FIGURE 28, there is illustrated a flowchart of the operation of the scanner and software interface in a local mode. Flow begins at a Start block and proceeds to a function block 2800 where the user connects the scanner to the user computer 302. The connection will be made through the wedge 1608. Flow is then to a function block 2802 where the user powers on the computer 302 such that the enabling process can begin. Flow is then to a function block 2804 where the computer 302 provides power to the scanner 1600 through the wedge 1608. Flow is then to a function block 2806 where the scanner processor 2600 initializes and accesses the NV memory 2602 for the stored handshaking code. In substantially the same time as the scanner 1600 is being initialized, the software interface is launched and run in the computer 302, as indicated in a function block 2808.

When running in local mode, the software interface establishes communication through the wedge 1608 to the scanner processor 2600 to begin the enablement process such that the scanner 1600 will operate. In a function block 2810, the handshaking process is performed via

a matching operation between the code stored in the scanner NV memory 2602 and the code shipped with the software interface. Flow is then to a decision block 2812 to determine if a valid match occurred. If not, flow is out the "N" path to a function block 2814 where the computer processor 2612 signals the scanner processor 2600 to disable the sensor head 2606 to prevent read capability of the scanner 1600. Flow then loops back to the input of function block 2810 to repeat the encrypted handshake. If the handshake is valid, flow is out the "Y" path of decision block 2812 to a function block 2816 where the computer processor 2612 signals the scanner processor 2600 to enable the sensor head 2606 by switching power to the sensor head 2606 using the head power switch 2604. The computer processor 2612 and the scanner processor 2600 then establish a data mode where scanned information is transmitted to the wedge 1608 for conversion into keyboard formatted data, and passed from there to the keyboard input port 2500 of the computer 302, as indicated in a function block 2820. Flow is then back to the input of function block 2810 to perform the handshake to maintain the enablement of the scanner operation. If, after power-up, the user chooses to substitute an unauthorized scanning device for scanner 1600, the handshake operation will fail and the scanner will be useless when used with the software interface.

Referring now to FIGURE 29, there is illustrated a flowchart of operation in a remote mode. Flow begins at a Start block and proceeds to a function block 2900 where the user connects the scanner to the computer 302 via the wedge 1608. The user then powers the computer 302, which powers the wedge 1608 and the scanner 1600, as indicated in a function block 2902. Flow is then to a function block 2904 where the software interface is executed on the computer 302. The user then connects to the GCN 306, as indicated in a function block 2906 for purposes of operating the scanner 1600. Flow is then to a decision block 2908 to determine if the user has registered the scanner and software interface. If not, flow is out the "N" path to a function block 2910 where the user computer 302 connects to CRS server 2700 where the user is presented with a registration process.

Registration requires that a user profile form be completed by the user by entering various bits of information comprising, for example, name address, phone number, unique number of the scanner 1600, and unique number of the software interface. The user then transmits the user profile information back to the CRS server 2700, as indicated in a function

block 2912. Flow is then to a function block 2914 where the CRS server 2700 sends an enabling seed back to the user computer 302 which enables operation of the scanner 1600. Had the user already been registered, flow would then be out the "Y" path of decision block 2908 jumping forward to the input of function block 2914 to perform a matching operation at the CRS server 2700 using the profile database stored in the CRS database 2702. The matching operation is performed using the unique number of the software interface, which is transmitted to the CRS server 2700. Upon a successful match of the unique software interface number, the seed is generated based upon the unique numbers of the scanner 1600 and the software interface. The CRS server 2700 then sends the enabling seed to the user computer 302.

Flow continues to a function block 2916 where the handshaking process is then performed between the computer processor 2612 and the scanner processor 2600, based upon coded information stored in the scanner NC memory 2602 and provided by the software interface. In one aspect of the remote operation, the seed received from the CRS server 2700 is the coded information used in the handshaking operation. In another aspect of the remote operation, the seed simply enables the operation of the software such that the handshaking operation can be performed between the software-provided unique number and the coded information stored in the NV memory 2602 of the scanner 1600. In any case, the seed is required from the CRS server 2700 to operate the scanner 1600. Flow is then to a decision block 2918 to determine if a successful handshake has been performed. If not, flow is out the "N" path to a function block 2920 to send a disabling signal to the switch 2604, to cut power to the sensor head 2606. If a valid handshake has been performed, flow is out the "Y" path to a function block 2922 to enable power to the sensor head 2606 by switching power through the switch 2604. Flow is then back to the input of decision block 2908 to determine if the user has already registered the product, and to continue sending the seed signal to enable operation of the scanner 1600.

Although the preferred embodiment has been described in detail, it should be understood that various changes, substitutions and alterations can be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A method of controlling a scanner with a software interface, comprising the steps of:

providing a scanner operable to read scannable information;

5 connecting the scanner to a computer which operates the software interface for processing the scannable information; and

performing an encrypted handshaking operation between the software interface and the scanner prior to allowing the scanner to become operable to read the scannable information.

2. The method of Claim 1, wherein the step of performing is performed in a local mode where the handshaking operation is enabled locally on a periodic basis during operation of the scanner.

3. The method of Claim 1, wherein the step of performing is performed in a remote mode where the handshaking operation is enabled remotely by an enabling signal on a periodic basis during operation of the scanner from a registration server disposed on a network common to the computer.

4. The method of Claim 3, wherein the computer is automatically logged in to the server using the software interface during operation in the remote mode to receive the enabling signal.

5. The method of Claim 3, further comprising the step of registering in the remote mode such that first-time operation of the software interface requires registering the software interface and the scanner by providing user profile information and both of the unique numbers to the registration server, in response to which the registration server providing the enabling
5 signal for operation of the scanner.

6. The method of Claim 5, wherein, subsequent to the step of registering, and when operating in the remote mode, the computer is automatically logged in to the registration server to perform a matching operation at the registration server with the unique number of the

software interface and a registration database, and transmitting the enabling signal to the computer in response to a successful match.

7. The method of Claim 1, wherein the scanner and the software interface each have a unique number associated therewith which is used to perform the encrypted handshaking in the step of performing.

8. An architecture for controlling a scanner with a software interface, comprising:
a scanner operable to read scannable information;
a software interface operable to run on a computer which interfaces to the scanner, said
software interface communicating with the scanner to interpret the scannable information;
5 wherein an encrypted handshaking operation is performed between said software
interface and the scanner prior to causing the scanner to become operable to read the scannable
information.

9. The architecture of Claim 8, wherein in a local mode, the handshaking operation
is enabled locally on a periodic basis during operation of the scanner.

10. The architecture of Claim 8, wherein in a remote mode, the handshaking
operation is enabled remotely by an enabling signal on a periodic basis during operation of the
scanner from a registration server disposed on a network common to the computer.

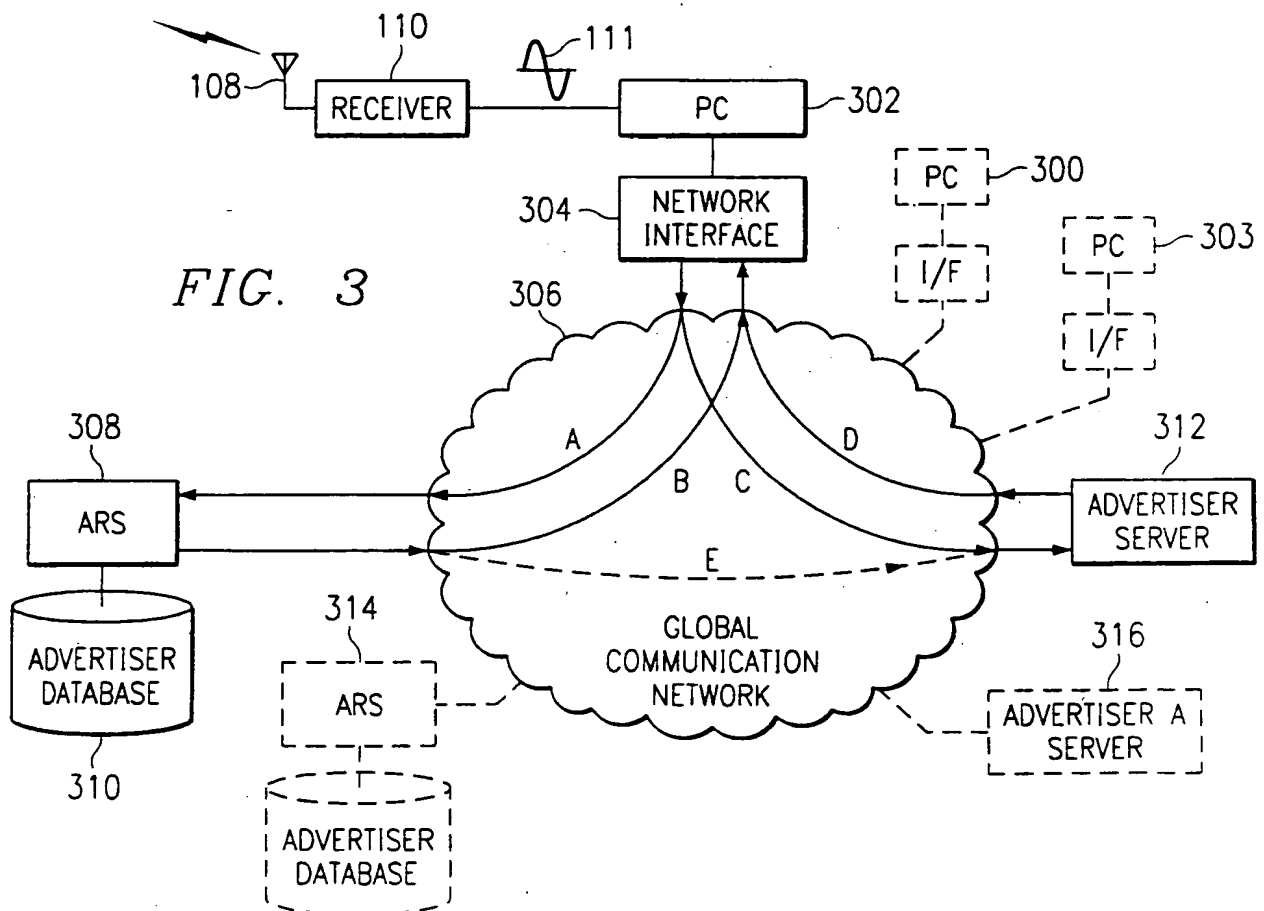
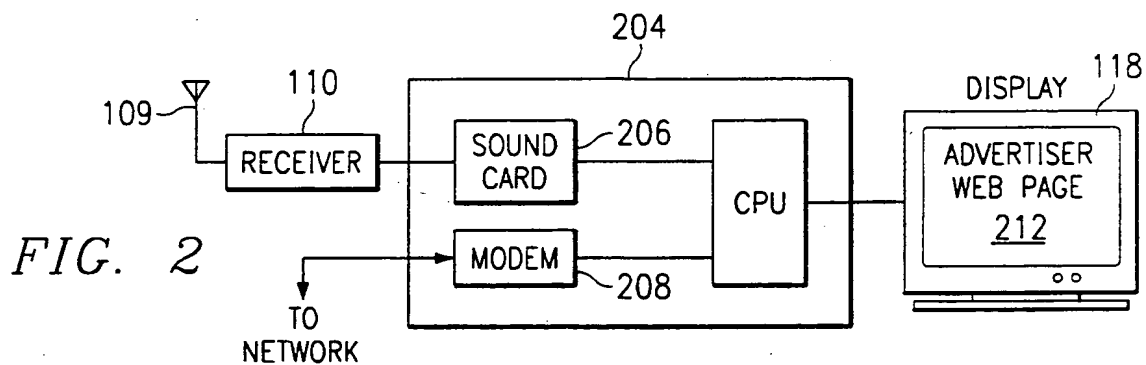
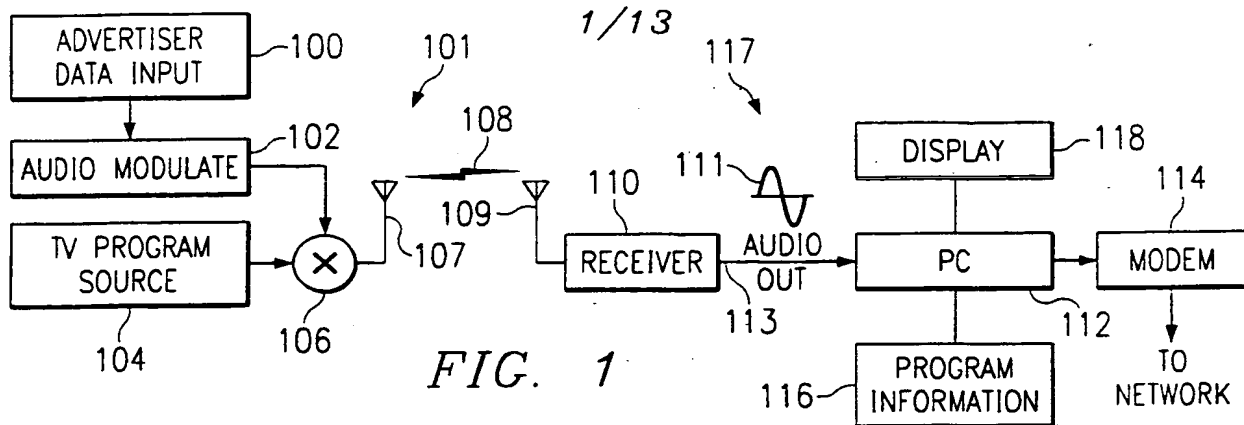
11. The architecture of Claim 10, wherein the computer is automatically logged in
to the server using the software interface during operation in the remote mode to receive the
enabling signal.

12. The architecture of Claim 10, wherein first-time operation of the software
interface in the remote mode requires registering the software interface and the scanner by
providing user profile information and both of the unique numbers to the registration server,
in response to which the registration server providing the enabling signal for operation of the
5 scanner.

13. The architecture of Claim 12, wherein the computer is automatically logged in
to the registration server when operating in the remote mode to perform a matching operation
at the registration server with the unique number of the software interface and a registration
database, and transmitting the enabling signal to the computer in response to a successful
5 match.

14. The architecture of Claim 8, wherein the scanner and the software interface each

have a unique number associated therewith which is used to perform the encrypted handshaking in the step of performing.



2/13

PATH A: SOURCE TO ARS

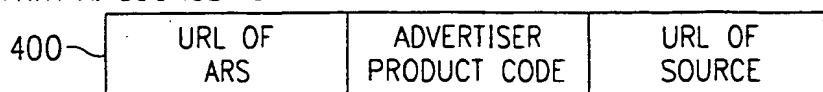


FIG. 4a

PATH B: ARS TO SOURCE

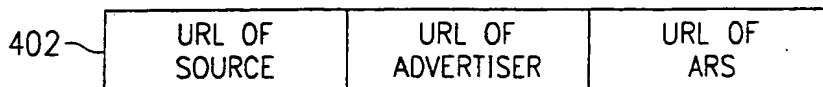


FIG. 4b

PATH C: SOURCE TO ADVERTISER



FIG. 4c

PATH D: ADVERTISER TO SOURCE

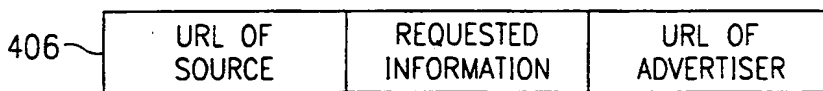


FIG. 4d

PATH E: ARS TO ADVERTISER (OPTIONAL)

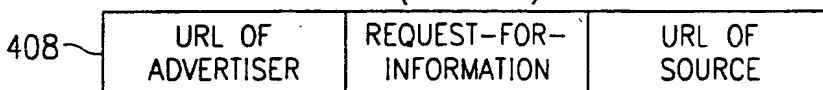


FIG. 4e

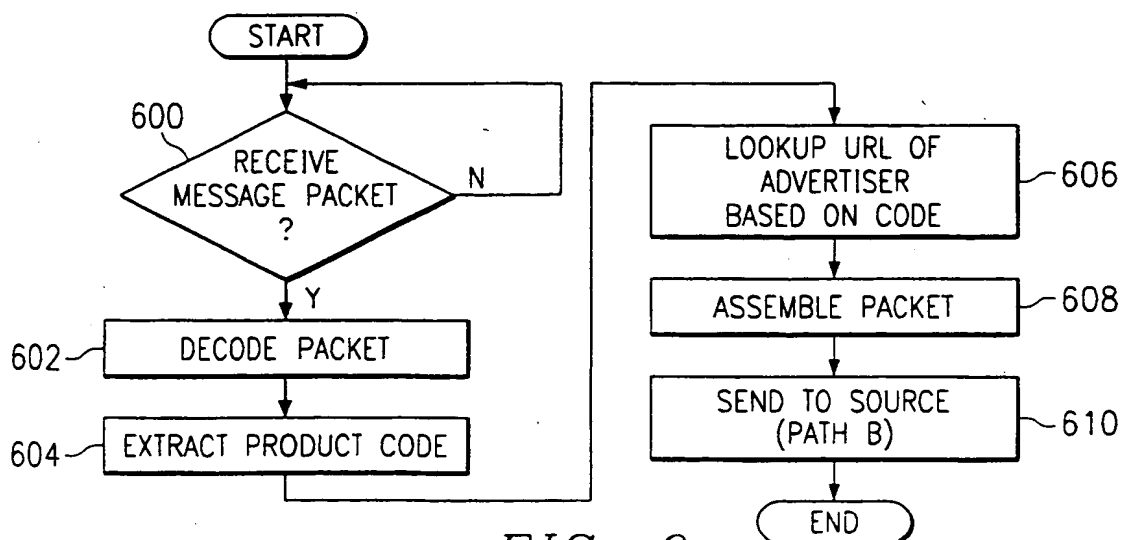


FIG. 6

3/13

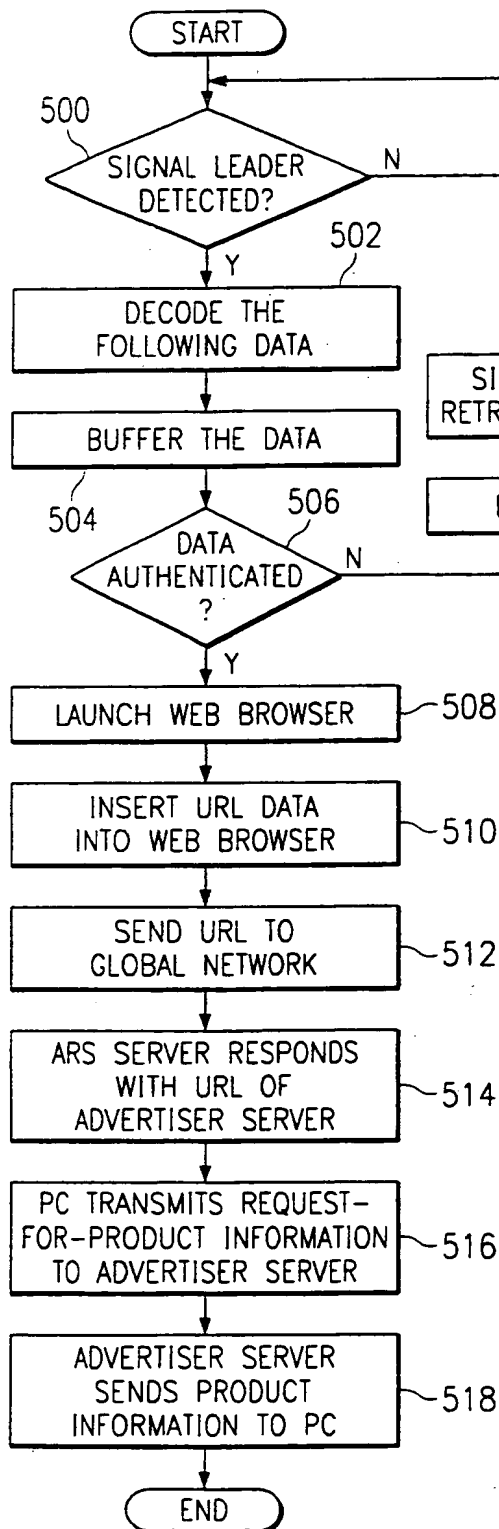


FIG. 5

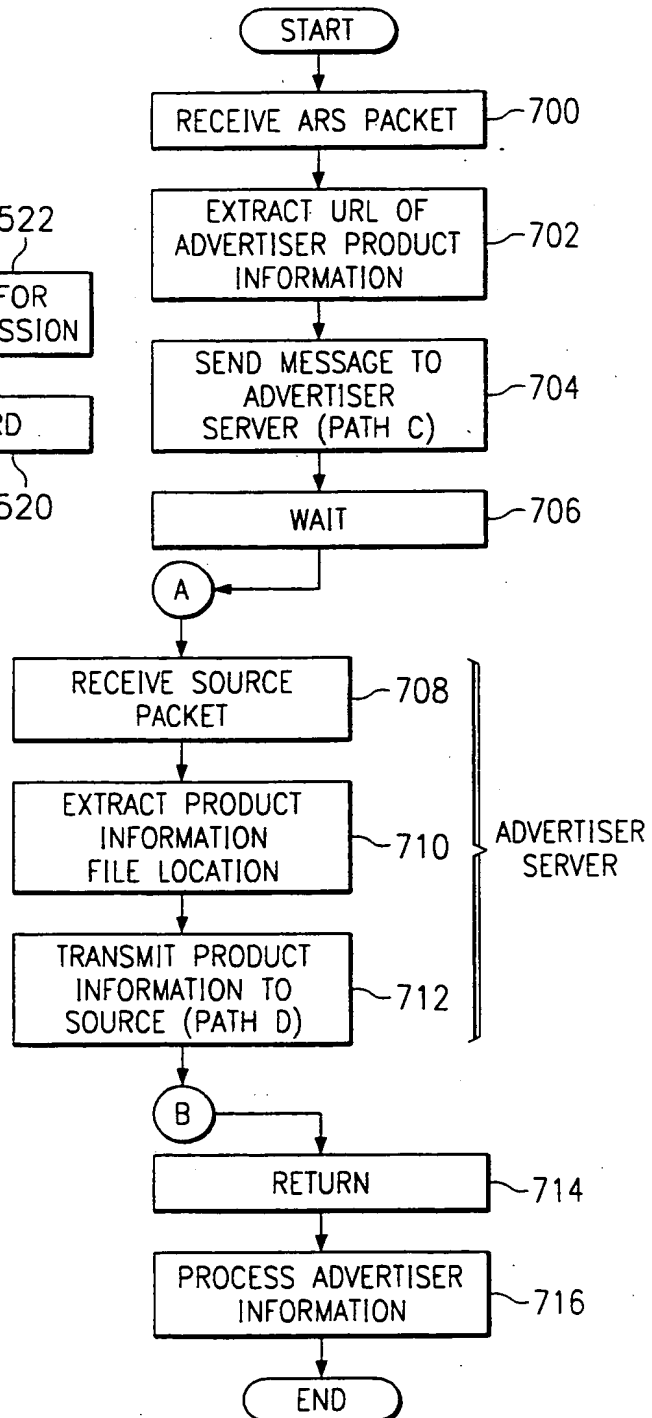


FIG. 7

4/13

DISPLAY

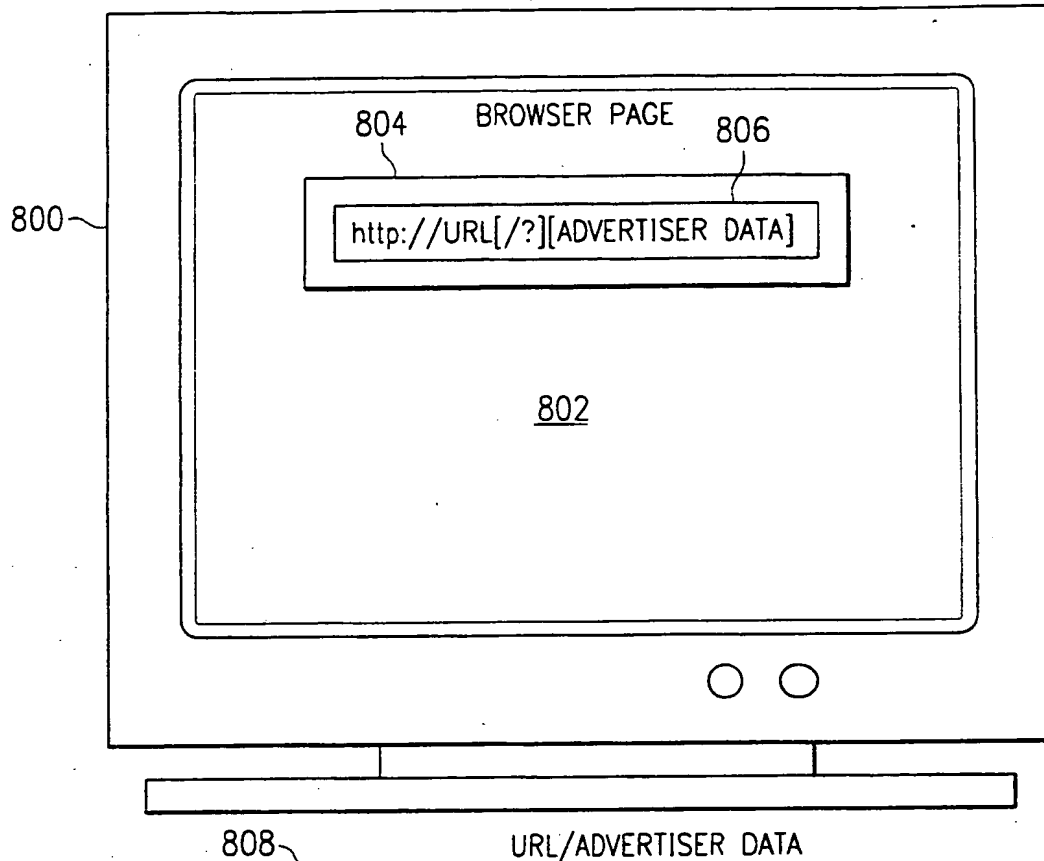


FIG. 8

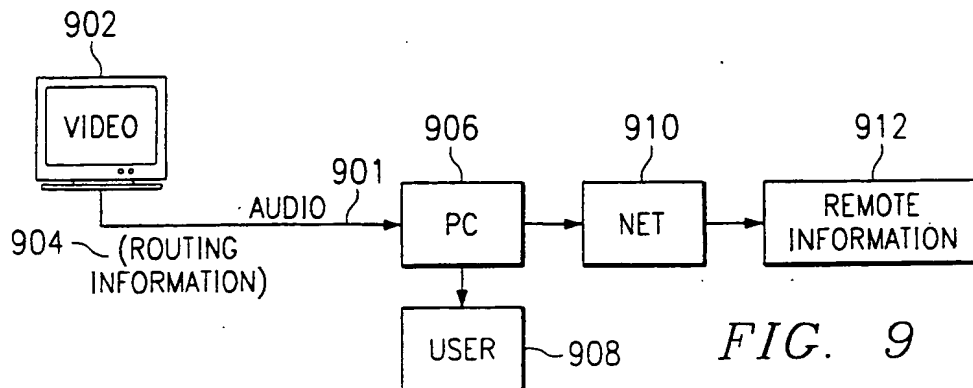
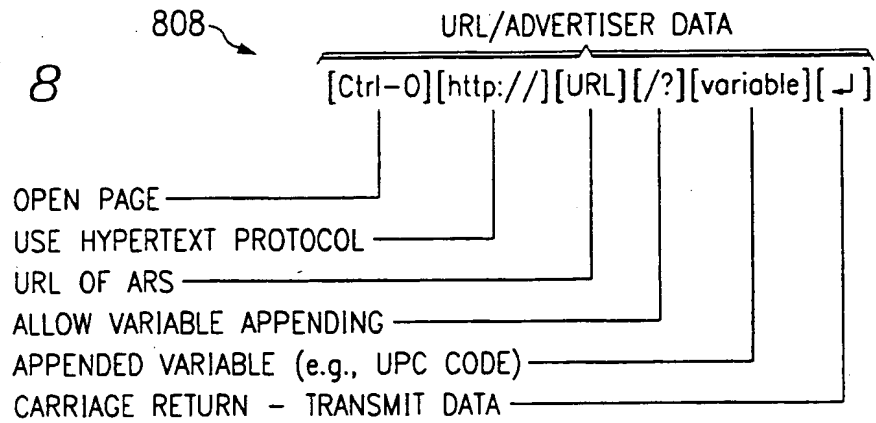
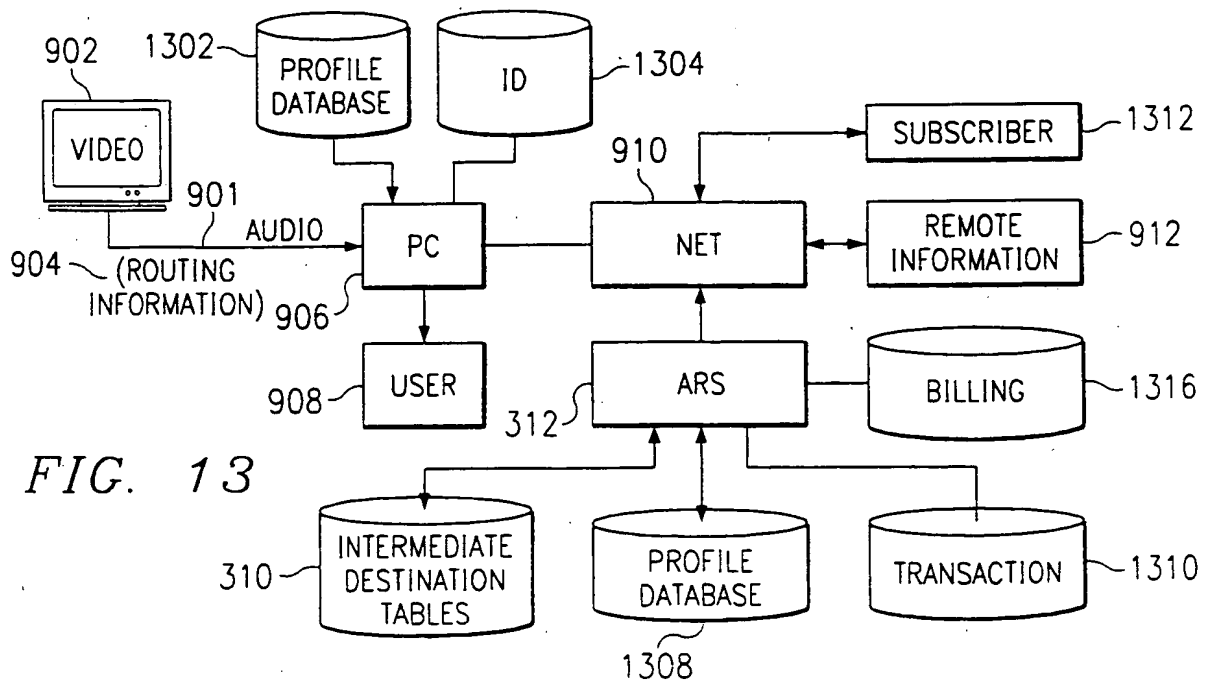
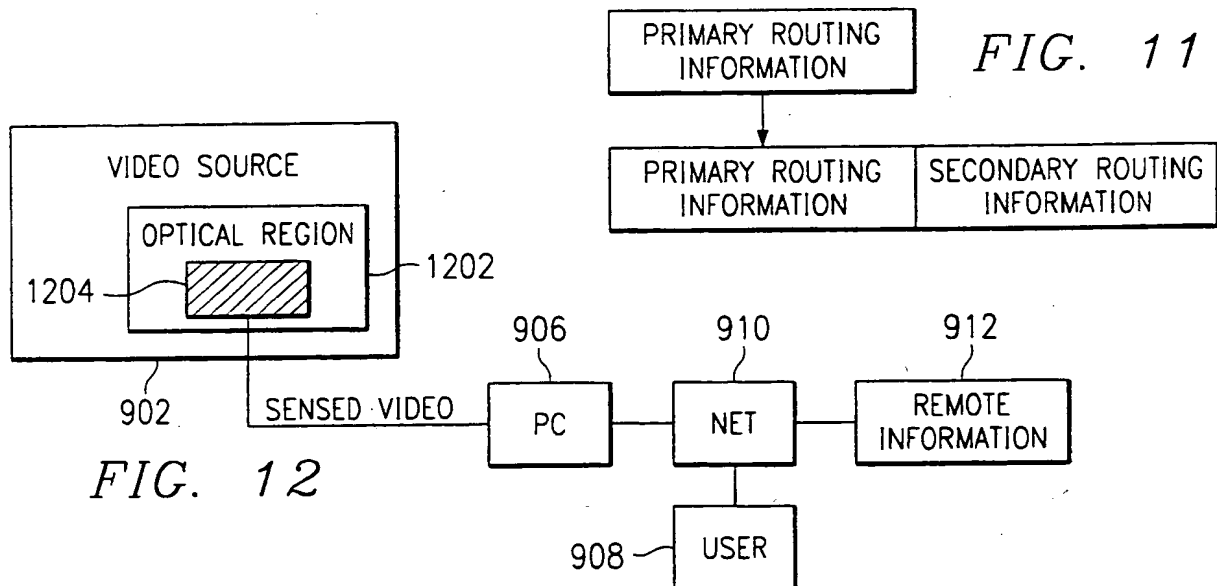
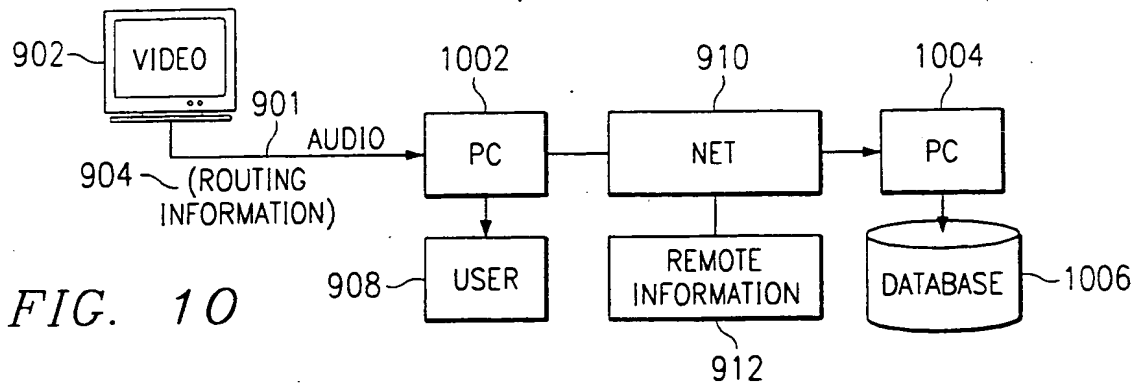


FIG. 9

5/13



6/13

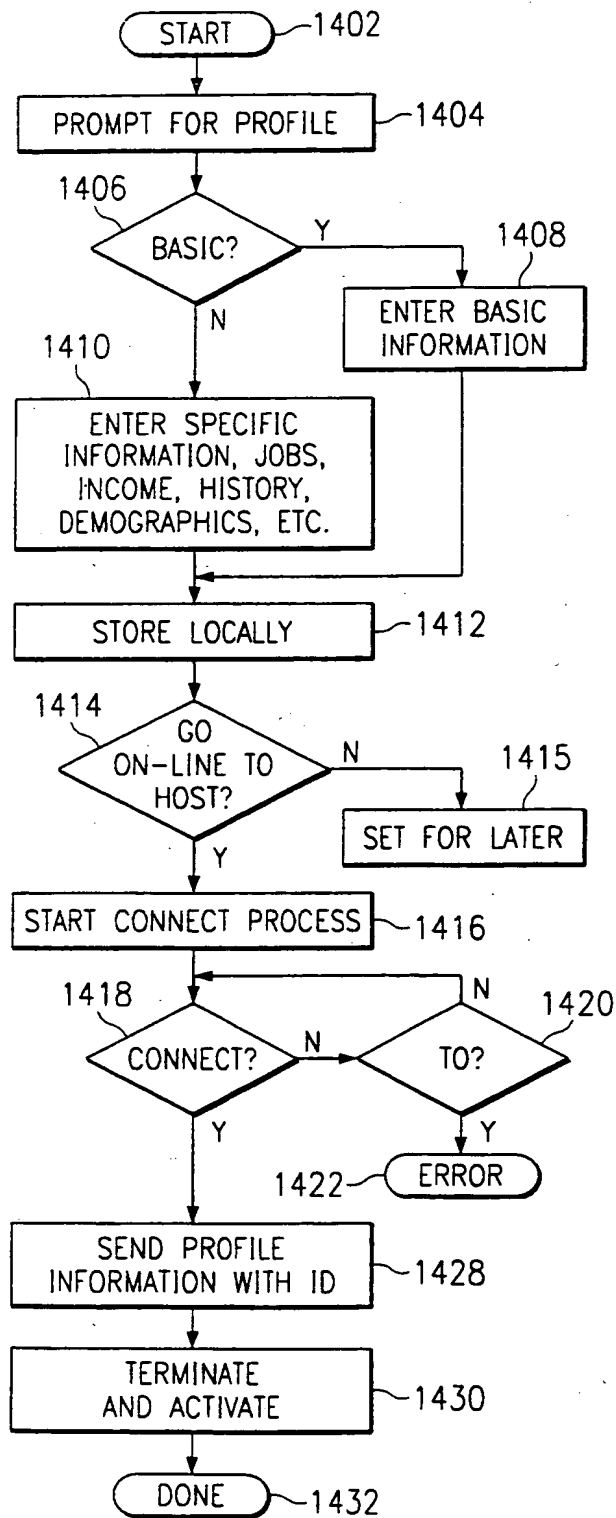


FIG. 14

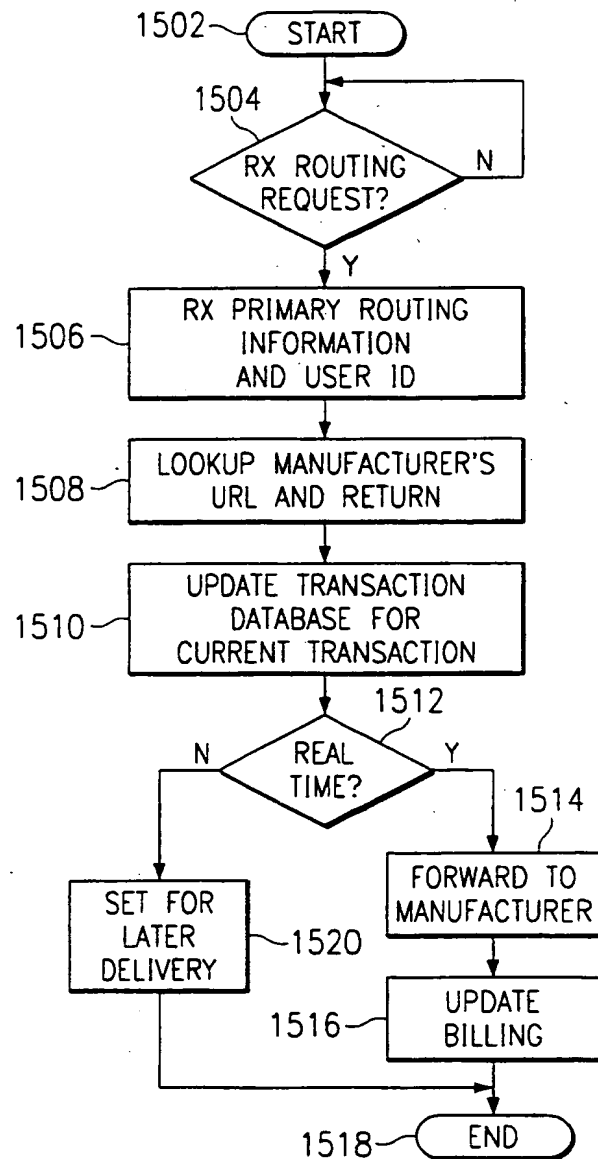
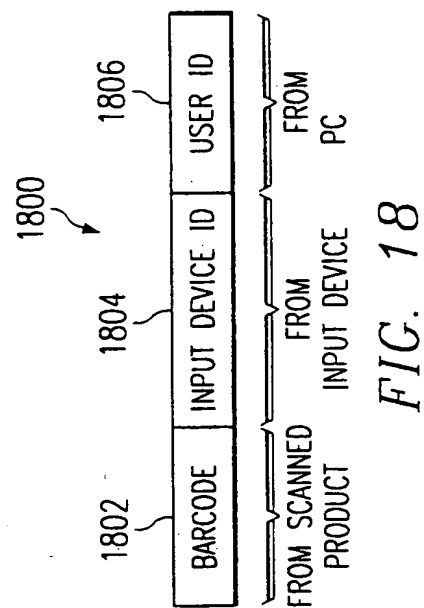
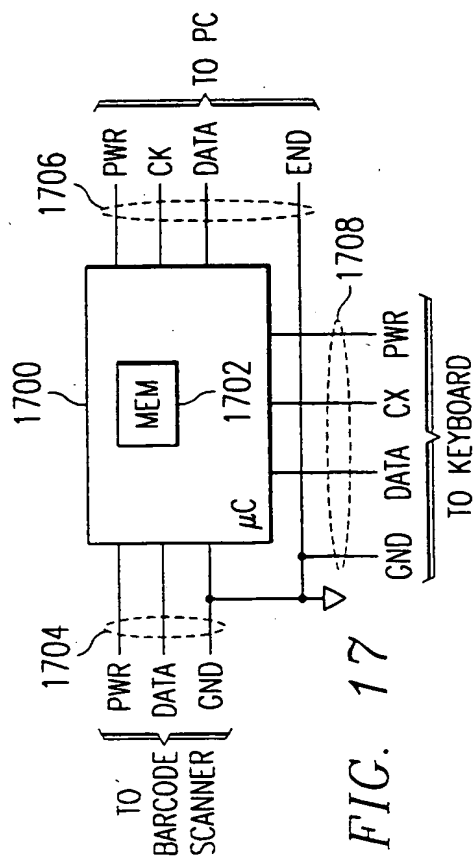
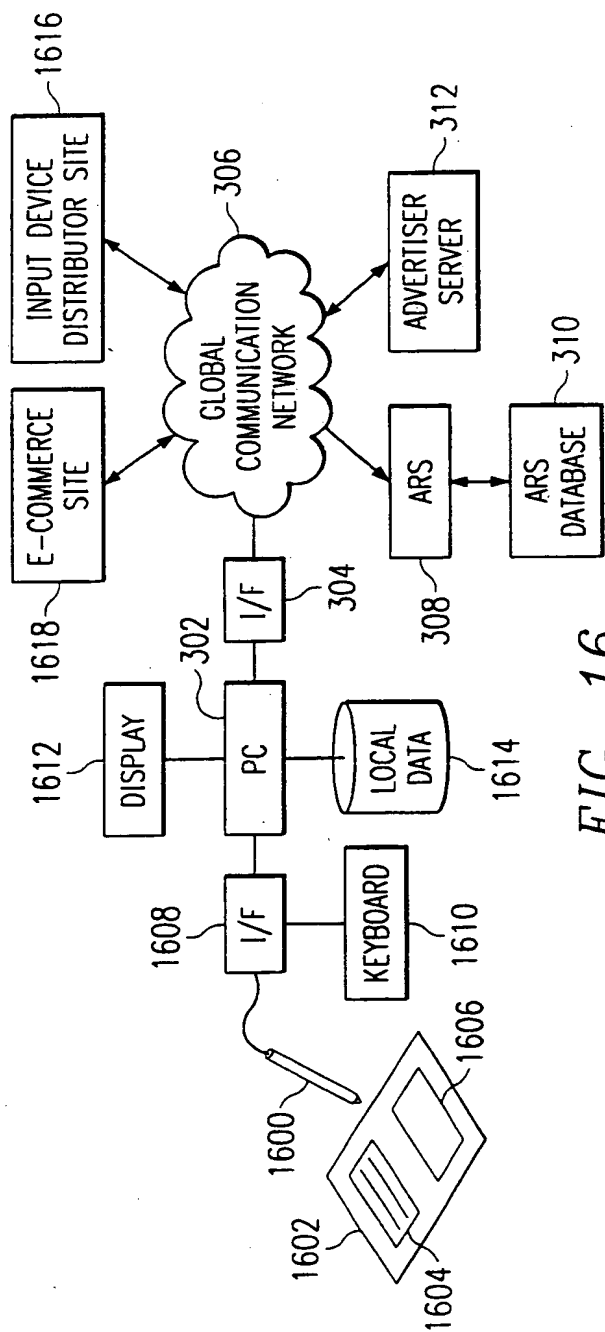
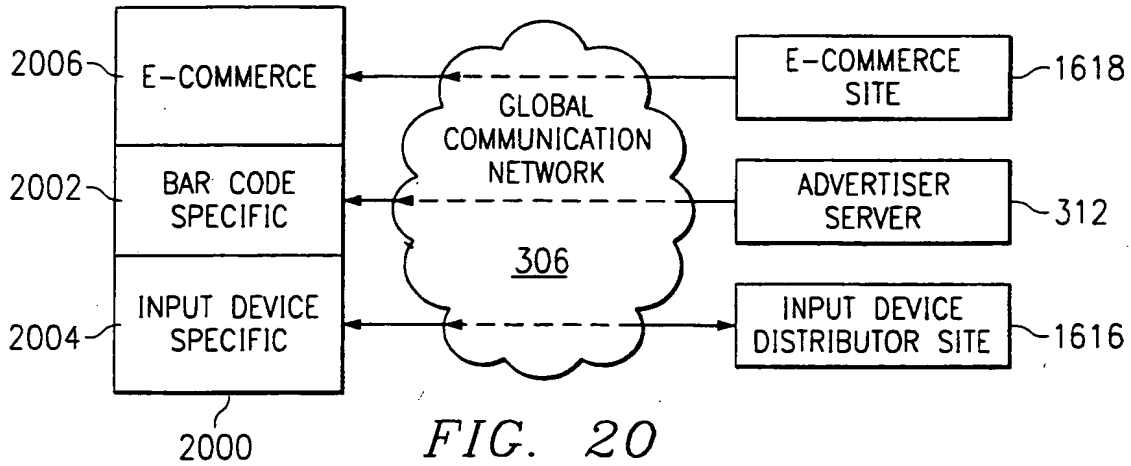
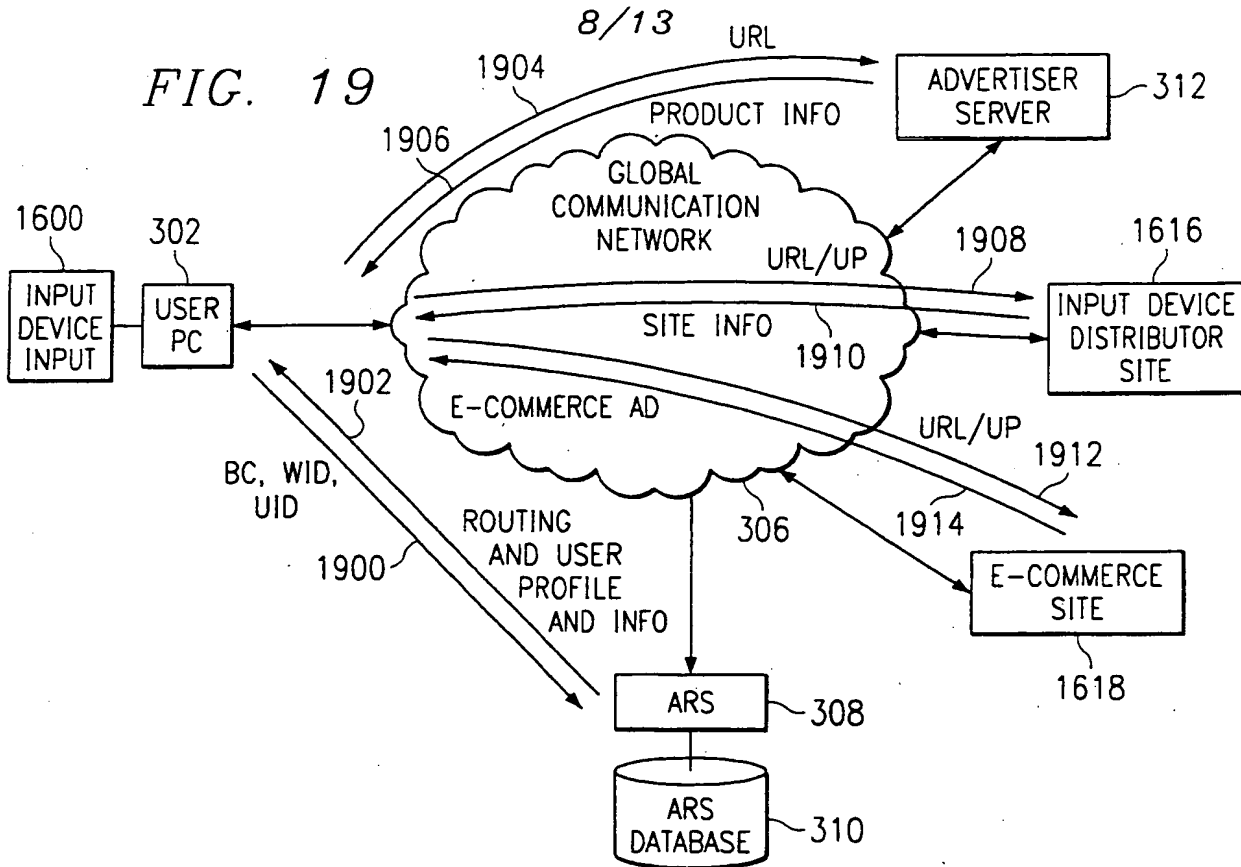


FIG. 15





2102		2104		2106	2108	
PRODUCT		INPUT DEVICE		USER	E-COMMERCE	
BC	ROUTE	ID	DISTR	PROFILE	BC	INFO

ARS DATABASE

FIG. 21

2100

9/13

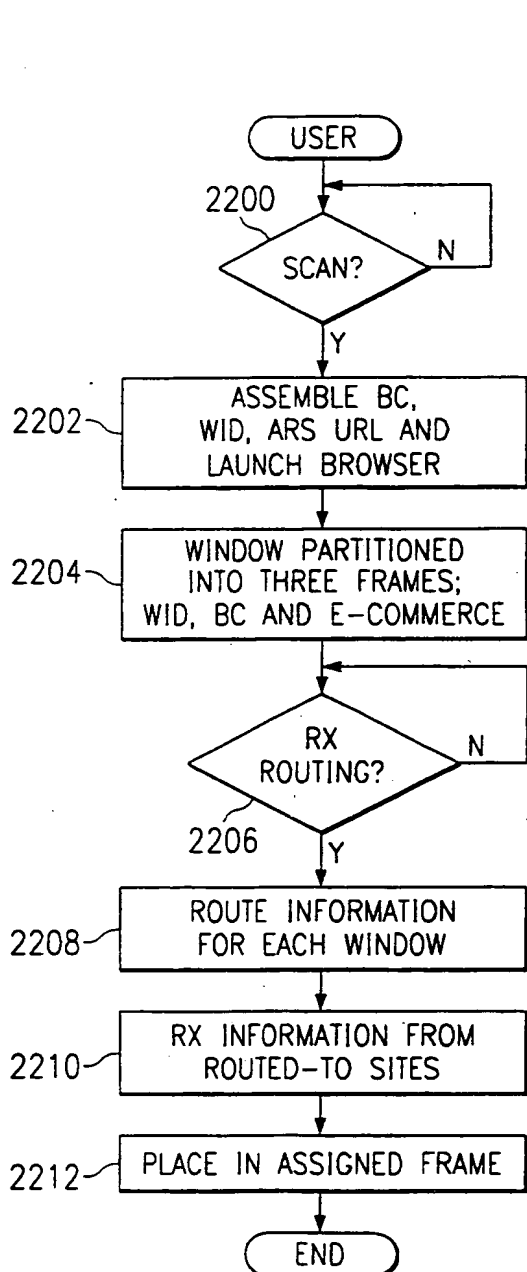


FIG. 22

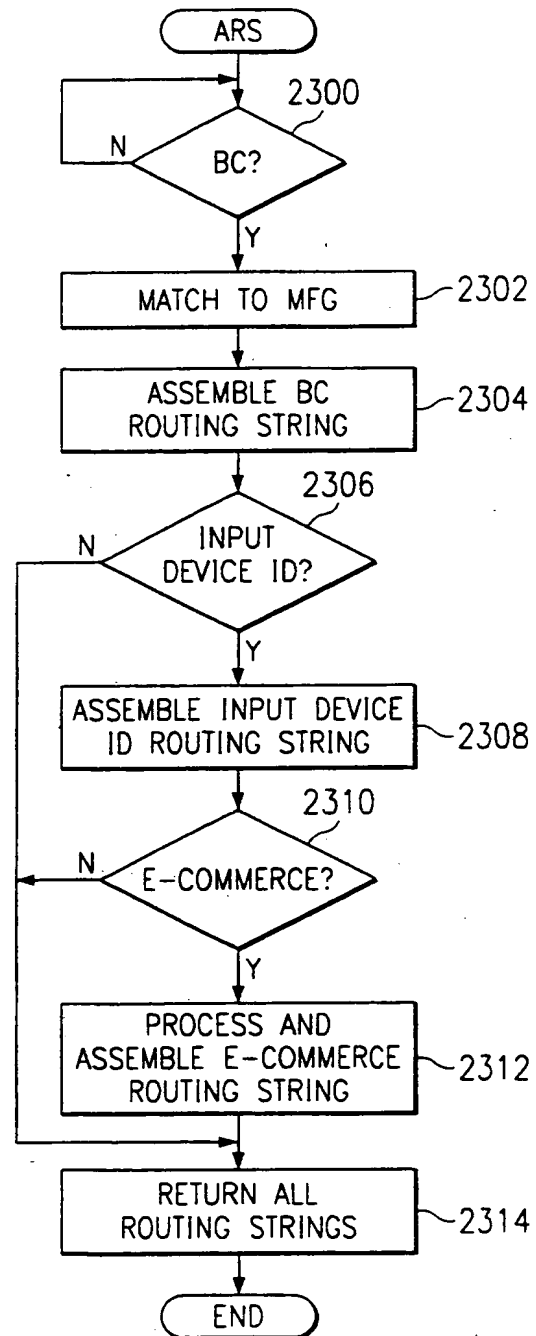


FIG. 23

10/13

FIG. 24

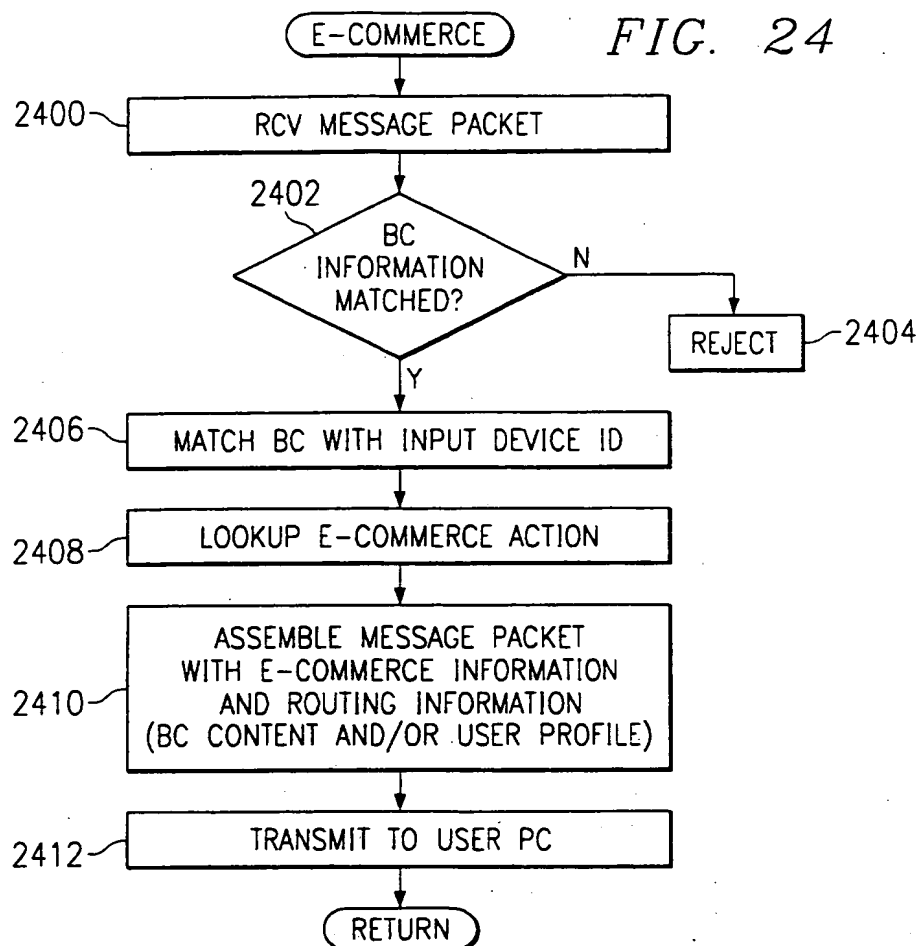
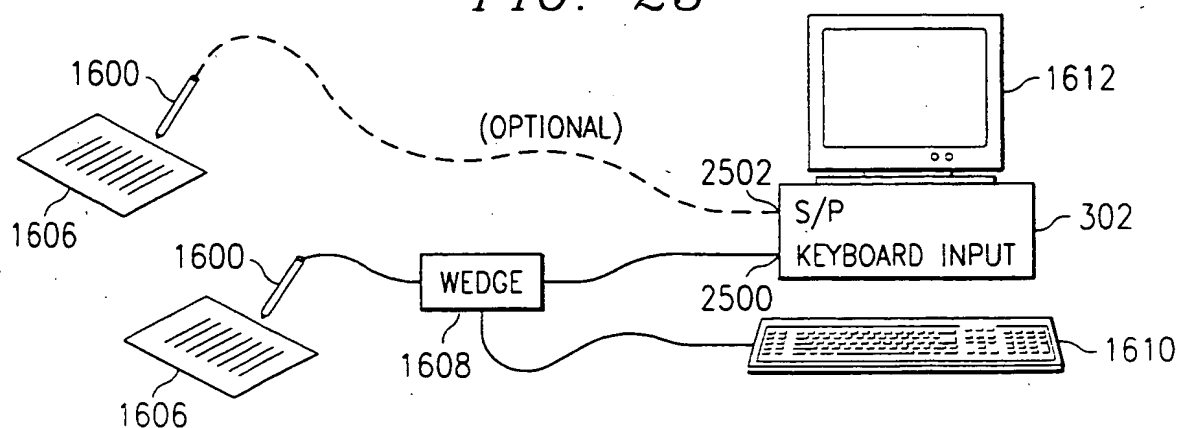
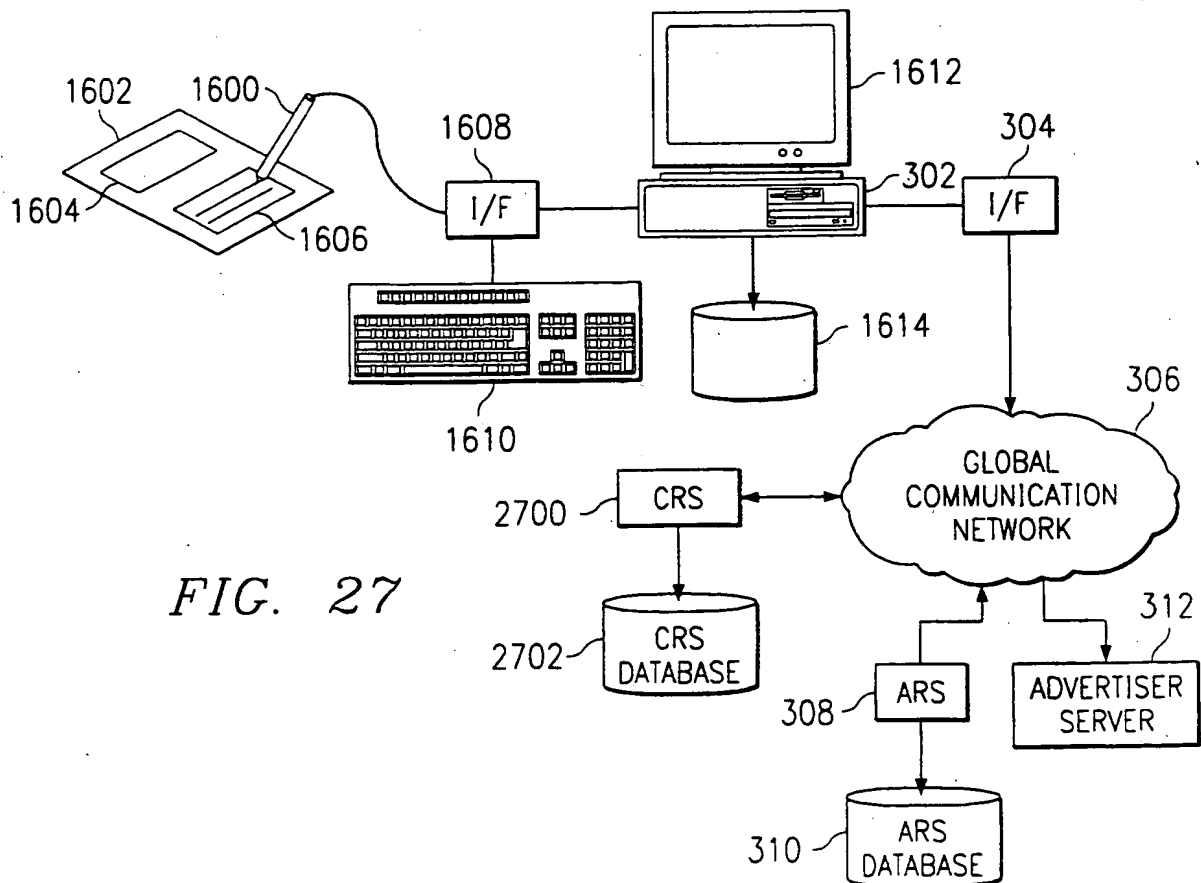
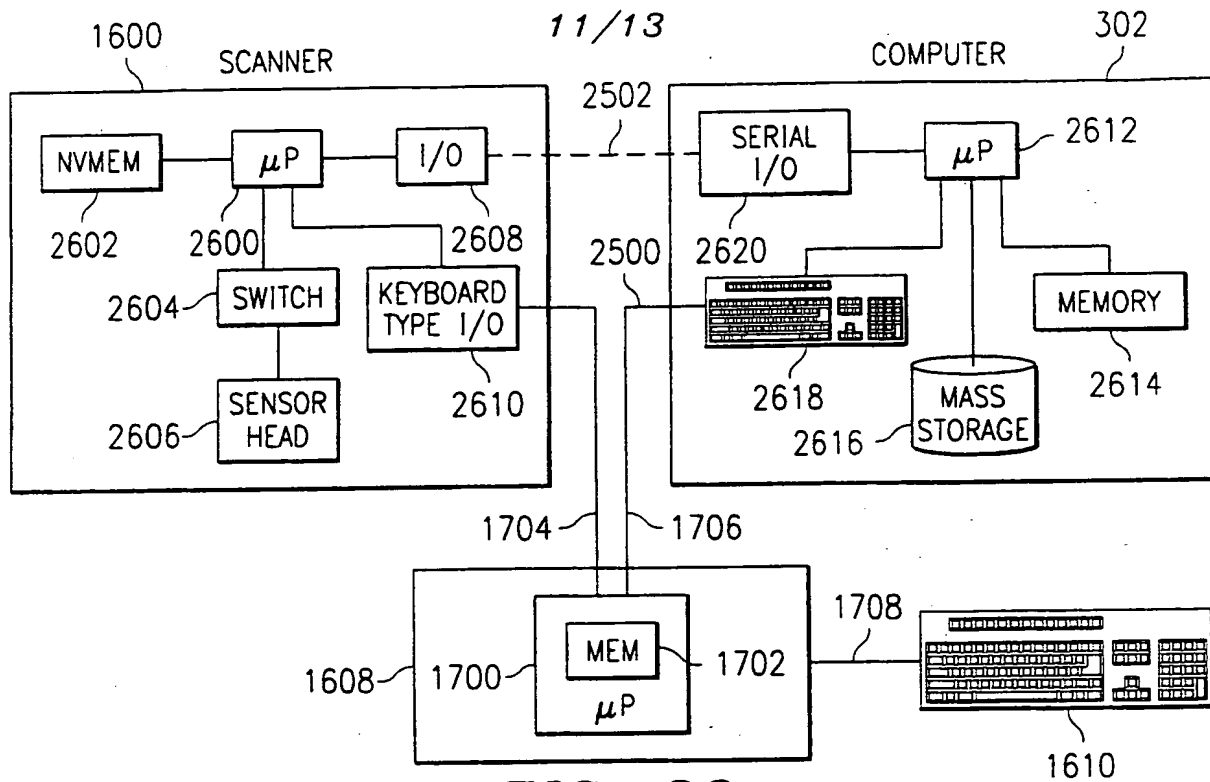


FIG. 25





12/13

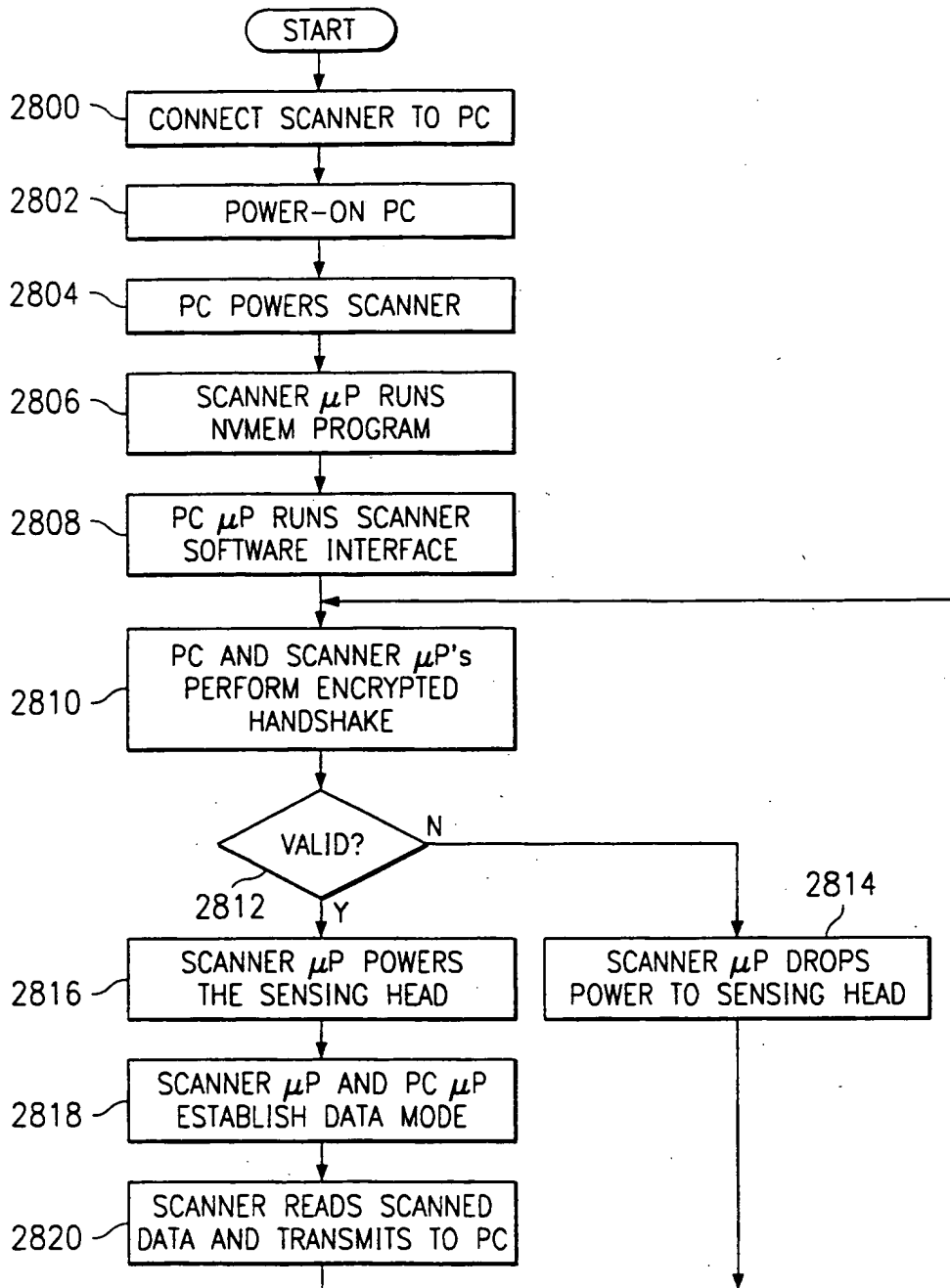


FIG. 28

FIG. 29

